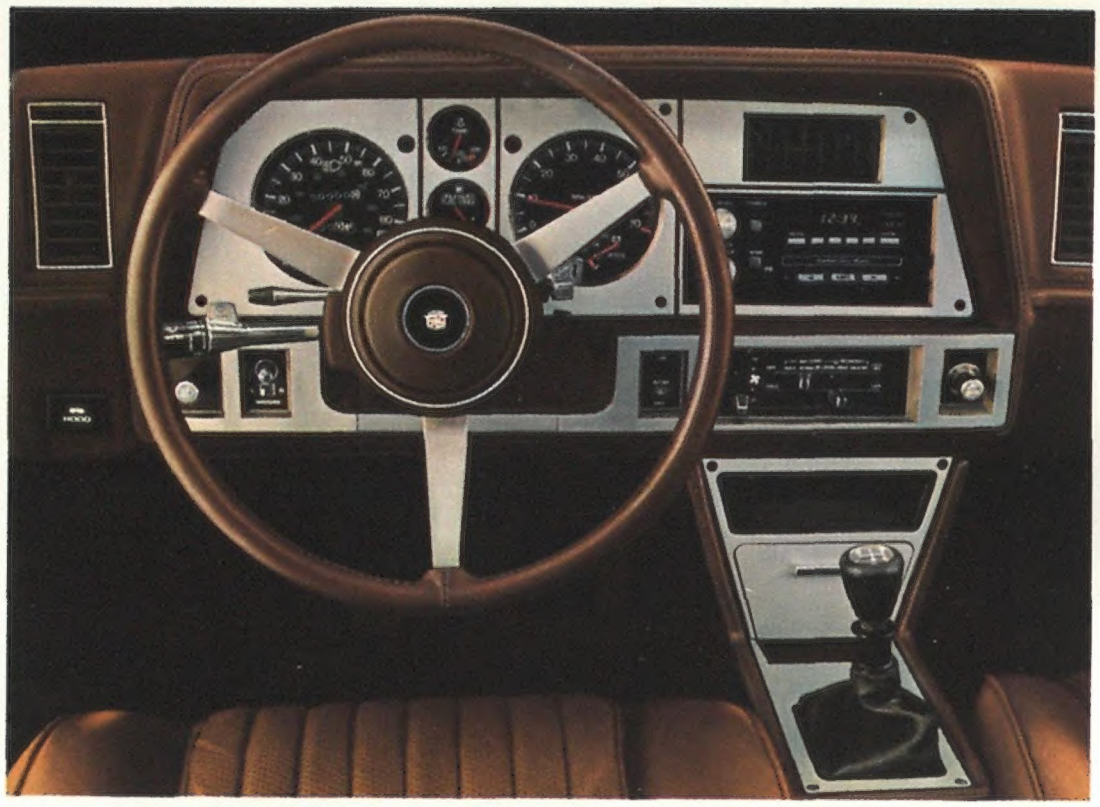
Smithsonian

October 1981

On a Yorktown redoubt,
a British drummer boy
signals for cease-fire (p. 92)



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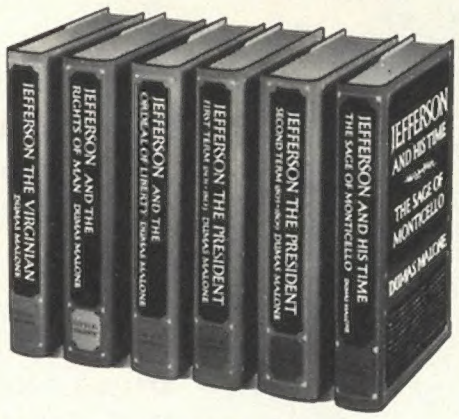
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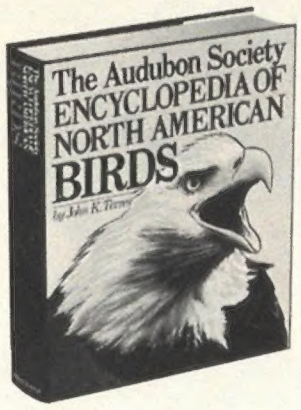

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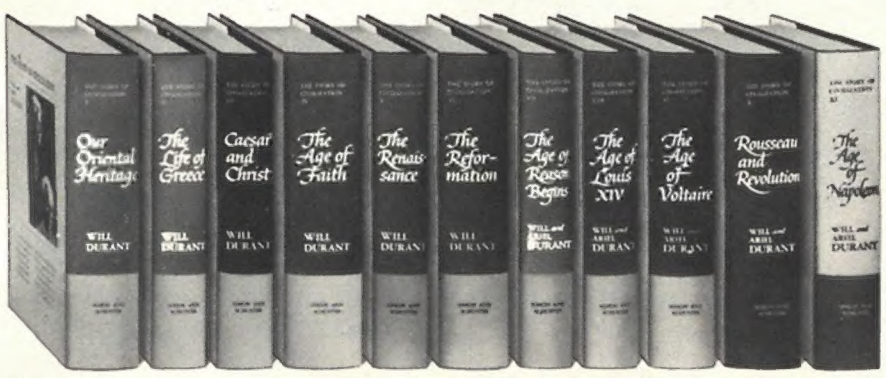

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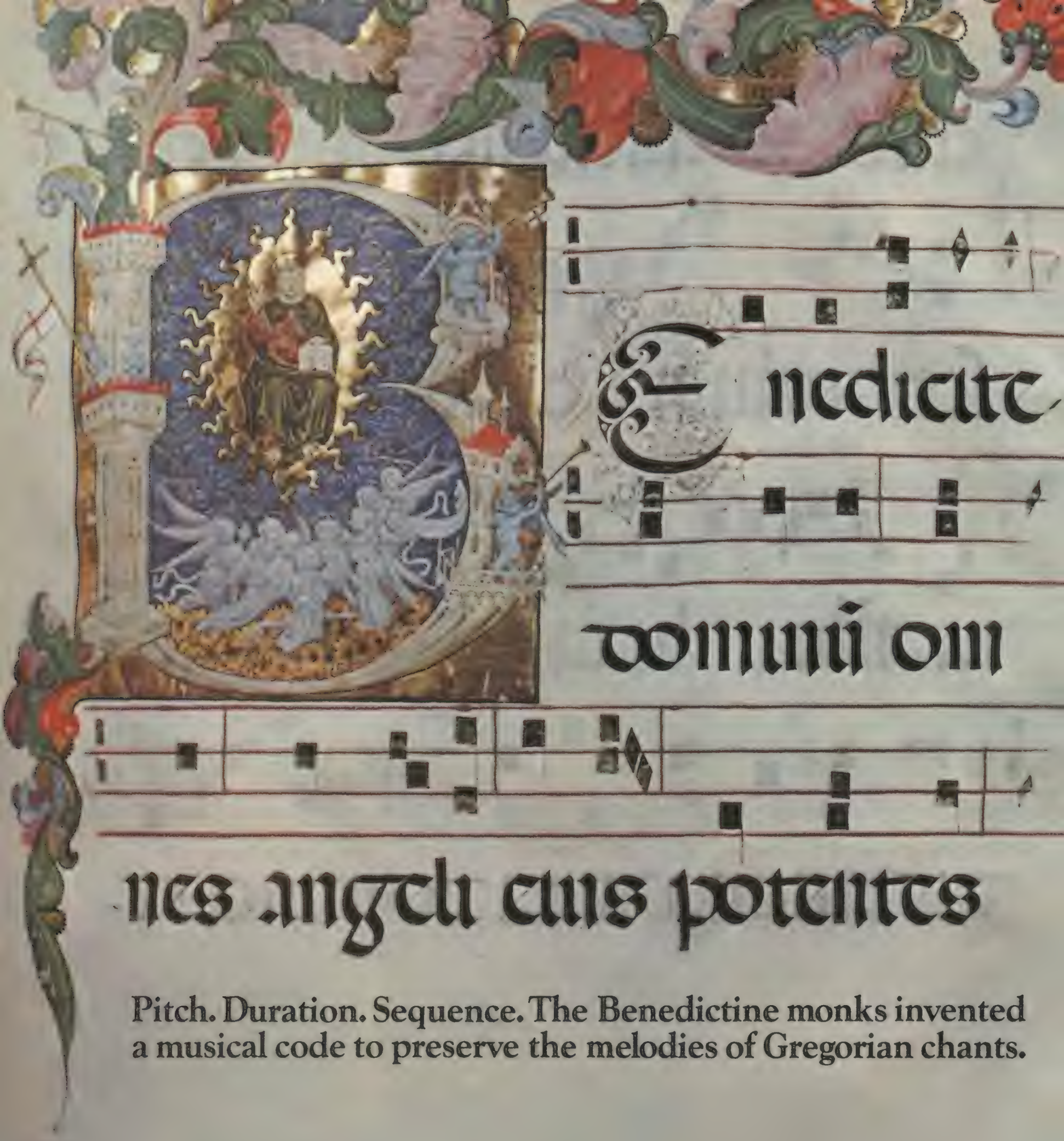

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Secretary Ripley's comments

The view from the castle

At a new 'window on the Mall,' an adjunct to the Freer Gallery, a new Museum of African Art and a greater garden will cap our mandate

For nearly 15 years the Freer Gallery, our jewel of Far Eastern and Islamic art, has been bulging at the seams of its cool, classical "villa" on the Mall. For five years the Museum of African Art, bequeathed to us by authorization of Congress in 1979, has been crowding some small row houses on Capitol Hill with its great collections from sub-Saharan Africa.

Now a magnificent new plan will solve the problems of both. The site lies to the south of our mother building, the castle, and abuts Independence Avenue; it is the back part of the original Smithsonian Reserve, deeded to us by Congress in 1846. In early years bear and bison roamed here before land for our National Zoo was acquired in 1889. Later the area housed laboratory sheds, greenhouses, a tennis court, a parking lot and even a Quonset hut (our first Air Museum).

Under the splendid new plan—the design concept of which has been approved by Washington, D.C., commissions and the authorization for planning approved by Congress—a full garden will be created on the site. Along the street it will be ornamented by gates designed for the Smithsonian castle by its architect, James Renwick jr., but never built. Most important, two pavilion structures will flank all this to display the history and culture of that vast arc of the world—Asia and Africa—that contains more than two-thirds of the world's population.

Here we will create museums, exhibits, educational and cultural-exchange facilities on three levels below ground. Here, too, will be the nerve center for the Smithsonian "outreach" programs, a multitude of activities reaching far beyond the Mall itself.

By creating such a "window on the Mall," the Smithsonian has a unique opportunity in these troubled times to reinvigorate its mandate "for the increase & diffusion of Knowledge among men." Nearly 140 nations will have a theater of action here to exhibit, to express their cultural histories and their creation of much of the roots of our own civilization. (They are friends, eager to make themselves known in our capital city; but we are still largely "innocents abroad," traveling much, and yet still full of misconceptions that these linked museums should help dispel.)

And how to finance this project, this plan to cap our mandate? We have determined to effect these buildings and garden by the same unique combination of private and public support that created the Smithsonian in the first place. Funds from abroad left by English philanthropist James Smithson founded the Institution. Funds from our government carry nearly two-thirds of the support today.

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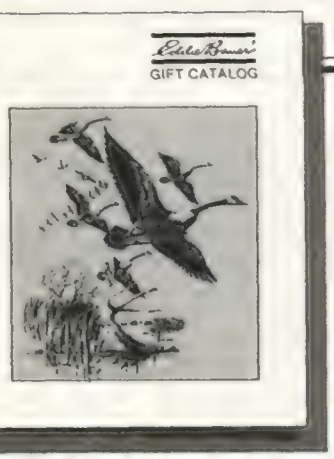

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Letters to the Editor

Santa Fe Opera

Dear Sir: Having enjoyed an inside view as an apprentice with the Santa Fe Opera, it was truly exciting to relive through your beautifully illustrated article, in the August issue, one of the most important summers of my life. It would be difficult to forget rehearsals and performances with such artists as Donald Gramm, Vera Zorina, Henry Butler and Igor Stravinsky. Equally unforgettable was my debut entrance on that outdoor stage, to serve champagne at the *Fledermaus* ball. A very strong gust of wind promptly blew every single glass off my tray. Subsequent performances saw the glasses secured to the trays, thanks to that patron saint of theater, Elmer's glue.

Being a native New Mexican, I am especially proud of the international success this company has managed through the tireless efforts of John Crosby, the superb singing artists and the persevering apprentices.

Manuel J. Melendez
Arlington, Virginia

Grizzlies

Dear Sir: Robert C. Gildart's article "Roaming their last domains, grizzlies may clash with Man," omits a tragic postscript to the National Park Service's termination of the Craighead grizzly-bear research in Yellowstone National Park. John Craighead predicted that there would be a fatality under the government's "cold turkey" approach to shutting down garbage dumps to the big bears without providing alternative food sources and other protective measures.

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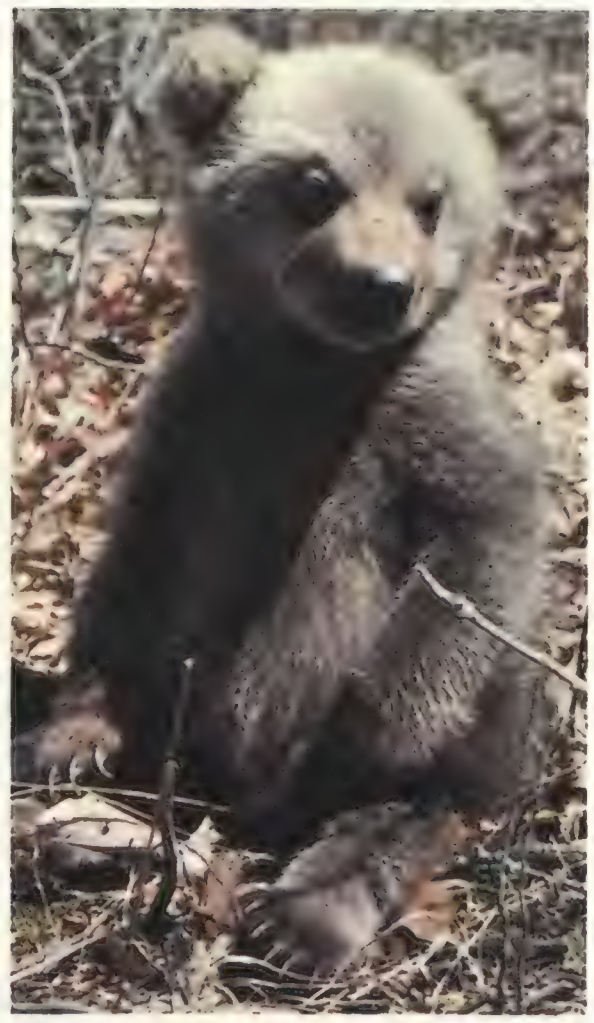
His prediction came true. In June 1972 a young man was killed by a grizzly, the first such fatality in Yellowstone since the 1920s. The bear, an elderly female weighing about 230 pounds, had extremely worn teeth—she may or may not have been suffering food stress.

It was indeed disheartening to read that no accommodation has been found between the need to protect park visitors and to preserve these magnificent animals in their last stronghold.

Dennis G. Martin
Pasadena, California

Dear Sir: The grizzly article was more than just interesting. It hit home many times. Whenever I'm out in nature I wonder at the unthinking, uncaring ways of some human beings. The idea of anything in nature disappearing so neither I nor future generations will see it makes me sad. And congratulations to the photographer of the grizzly cub [see below]. That little fellow has a message for



all of us. He should go national like Smokey did, asking people to leave a place on Earth for him and other wildlife to live free.

N. E. Kent
San Antonio

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Dear Sir: As a taxpayer, I resent grizzlies and other bears being killed without representation. Maybe we should keep Glacier National Park as a true animal preserve and let littering human beings hang out at Coney Island, Disneyland and other "human preserves."
Jean Bowlen Bloombergh
Rockport, Massachusetts

Saratoga

Dear Sir: Saratoga is, for many of the reasons you displayed in word and picture, my favorite place in the world. I remember so well the delightful nighttime diversion of Saratoga Harness, the half-mile track where trotters and pacers clip-clop their way past what is affectionately known as the "dollhouse of harness racing." Petunias, geranium and ivy abound, and nothing can top the evening air of August while one watches the races from a lawn chair. Fabulous!
Richard L. Ten Eyck
Williamson, New York

Dear Sir: The Saratoga springs are not the only carbonated waters east of the Rockies. There are seven naturally carbonated springs in Wayne County, North Carolina, in a community known as Seven Springs, which was a leisurely health resort from 1881 until 1944.
Emily F. Killette
Warsaw, North Carolina

Pinkerton

Dear Sir: "Pinkerton brought law and order—19th century style," by Frederick S. Voss and James G. Barber, discusses the Pinkerton Agency's "investigation" of a clandestine organization of Irish-Catholic miners who committed "sabotage and murder" and were brought to justice through the efforts of the Pinkerton agency and its operative James McParlan.

Philip S. Foner in his *History of the Labor Movement in the United States,* makes this statement:

"Recent research has revealed a different story. It is now established that there was no society in America calling itself the Molly Maguires, that this name was tagged to the Ancient Order of Hibernians by the commercial press whose purpose it was to help the coal operators crush all organization in the mining industry; that the Philadelphia and Read-

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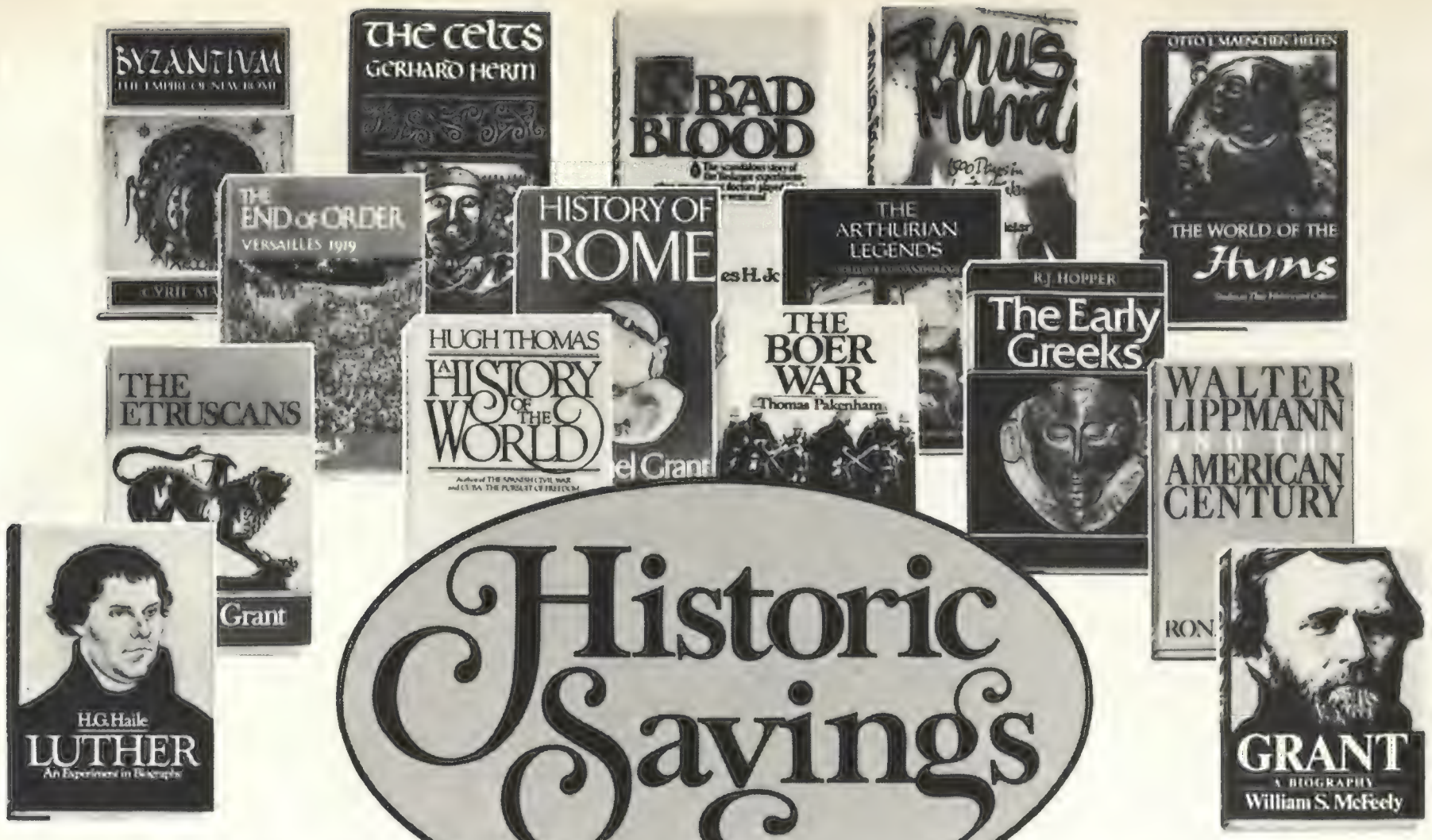

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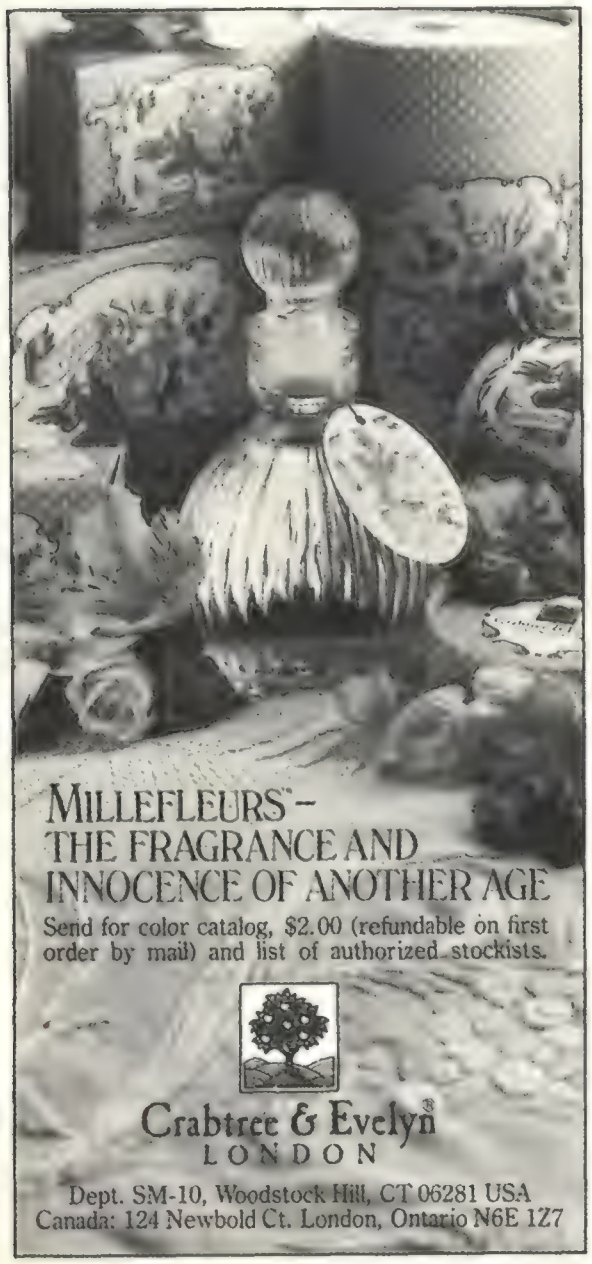
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ing Company hired the Pinkerton spy agency not to save society from a band of terrorists but to spread terror; that during the 'sixties and early 'seventies the operators had subsidized secret armed vigilante societies . . . to murder and terrorize miners."
Patrick Salkeld
Homestead, Florida

Acts of violence were committed by both management and labor, and passions ran high at the time of the trial. The Molly Maguires, as they were called, were not a labor organization but were identified with the labor movement. Author Foner himself has been described as a controversial labor historian. On balance, the Pinkertons have won praise for tracking down desperadoes, but have been condemned for their strikebreaking excesses. Ed.

Galileo

Dear Sir: Although I enjoyed Israel Shenker's article, "After 340 years, Galileo may beat the Inquisition," several points require clarification.

The case is presented as the archetype of all conflict between enlightened scientific research and an archaic and anti-intellectual Church. In fact, scholars of the day had neither sufficient critical apparatus for adequate Biblical exegesis nor acceptable scientific theories to handle many complex problems created by the Copernican system. Maffeo Barberini, Urban VIII, as a cardinal had actually sided with Galileo in 1611 during a public debate in opposition to traditional Aristotelianism. And in 1613 Barberini wrote to Galileo to congratulate him on the publication of *Letters on the Sun Spots*, which advocated heliocentrism. Contrary to the author's characterization of Urban VIII as being preoccupied by "vanity, ambition, military power and narrow orthodoxy," his Pontificate is perceived to be particularly distinguished, aside from the Galileo affair.

The article's main deficiency, however, is its failure to view the trial in the context of the 17th century. Recall that the church was experiencing an unprecedented crisis in its traditional authority; it was recoiling from the Lutheran and Anglican Reformations and was confronting an enormous threat from the continuing presence of Islam.
Charles Bertolami
Simsbury, Connecticut

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Dear Sir: Particularly illuminating and somewhat passed over in your article: Nicholas Copernicus, who was a priest as well as a scientist, was never involved with any strictures of the Catholic Church for holding—perhaps even advocating—the same views and truth as Galileo Galilei. As a scientist, he did not choose to make his very correct—at least at that time—view a theological issue as Galileo seems to have done. Nicholas Copernicus kept the question about the sun and the moon where it belonged: a scientific issue.
The Reverend John Shaughnessy
Congregation of the Most Holy Redeemer
Topeka, Kansas

Edmondson

Dear Sir: Thank you for the beautiful article on William Edmondson. I was fortunate enough to know the sculptor, and I also knew Sidney Mttron Hirsch during his lifetime. Edmund Fuller's *Visions in Stone* and Louise LeQuire's article have brought the sculptor the recognition which he has always deserved.
Marjorie Marlowe
Nashville, Tennessee

Phenomena, comment and notes

Dear Sir: What I got from John P. Wiley's account of the metaphysics of John A. Wheeler is that that version of modern physics is simply a paraphrase of Protagoras: Man is the measure of all things, of things that are that they are, and of things that are not that they are not.
Lawrence B. DeSaulniers
Albuquerque

Around the Mall

Dear Sir: After reading Edwards Park's column my compliments to John White for doing what I always suspected curators did—play with their charges, as in this case the John Bull. Curator White and company are to be commended for going beyond just displaying such an important piece of history. That the John Bull still runs after 150 years says a great deal about the way it was built and the people who built it. It also says a great deal about the manner in which it has been preserved and about the people entrusted with its preservation.
Eric P. Fogg
Florissant, Missouri

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A unique collection that only the Country Music Foundation could assemble

To assemble this collection, the staff of the Country Music Foundation carefully reviewed the Foundation's own archives of 75,000 records. In addition, they enlisted the support of all the country music record companies – whose vaults hold many of the master recordings selected for this collection. And they were able to obtain rare recordings from private collectors and country music artists themselves.

As a result, the Country Music Foundation Official Archive

"Country is the music of the people. Songs of the soil. forsaken and fulfilled love. Story songs whose music is both contemporary and timeless. I love it, and I am proud to be part of the first collection to tell the whole country music story."
—Johnny Cash

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Collection is unique both in scope and importance. A collection that would be difficult – or impossible – for any individual to duplicate.

All the great performers

The collection will feature milestone recordings from the careers of country music's most important artists. Such *great contemporaries* as Loretta Lynn, with 'Blue Kentucky Girl' and 'Coal Miner's Daughter.' Kenny Rogers and The First Edition, with 'Ruby, Don't Take Your Love to Town.' Johnny Cash with 'I Walk The Line' and 'Sunday Morning Coming Down.' Dolly Parton, with 'Coat Of Many Colors' and 'My Tennessee Mountain Home.' The "outlaw" music of Willie Nelson. The Nashville sound of Chet Atkins and Eddy Arnold. Country rock, with The Charlie Daniels Band. And country classics by popular music artists Linda Ronstadt, Glen Campbell and Anne Murray.

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The collection will include such *rare recordings* as Vernon Dalhart's 1924 recording of 'The Prisoner's Song' – country music's first million selling record, and Loretta Lynn's early classic 'Honky Tonk Girl' – now out of issue. And from the Foundation's archives will come *previously unreleased recordings* – studio "takes" never before made generally available.

Records of superior quality

Every step has been taken to ensure the *technical excellence* of the collection. Thus, all of the *early* recordings will first undergo a painstaking restoration process in the Country Music Foundation's newly opened Audio Restoration Laboratory. Here, recordings of classic performances will be electronically "cleaned" groove-by-groove to eliminate extraneous surface noise and preserve the original sound.

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Around the Mall and beyond

The Smithsonian Institution Traveling Exhibition Service, which sensibly renders its title down to the acronym SITES, will be stirring appreciative hearts this month in Florida, both in Jacksonville and Miami Beach. "John Sloan in Santa Fe" is the name of the first SITES show, the one that opens in Jacksonville's Cummer Gallery of Art on October 3. Sloan, as all you fellow art lovers know so well, was one of the fathers of the "Ashcan" School—American artists who helped establish a strong American tradition of realism, of discovering and depicting facets of everyday American life that might be sad or funny or scary or wistful but were always familiarly human and interesting.

We wrote about John Sloan in this magazine exactly ten years ago, for 1971 was the centennial of his birth, and the event was marked with an exhibit at the National Gallery. Many of the paintings shown, and the accompanying descriptions dealt with Sloan's life in New York City. He went there in 1904 after beginning his career in Philadelphia as a newspaper illustrator. Clearly he enjoyed the Big Apple with its thrusting interplay of people determinedly trying to make a buck. He painted them with warmth and a sense of fun.

In 1919 he discovered New Mexico and like a lot of artists fell in love with it. He bought a house in Santa Fe, and though his style changed to adapt to the different lights and shapes and to reflect the cultural complexity of coexistent Spanish, Anglo and Indian traditions, he saw the same nice, warm moments of the lives about him and caught them with the same zest.

The SITES show spells out all of this, and of course much more. Sloan emerges as a broad-based artist, interested in a lot of things. One has the feeling that if he had come to know Geneva, Illinois, or

John Sloan painted *Picnic, Arroyo Hondo* in New Mexico in 1938.

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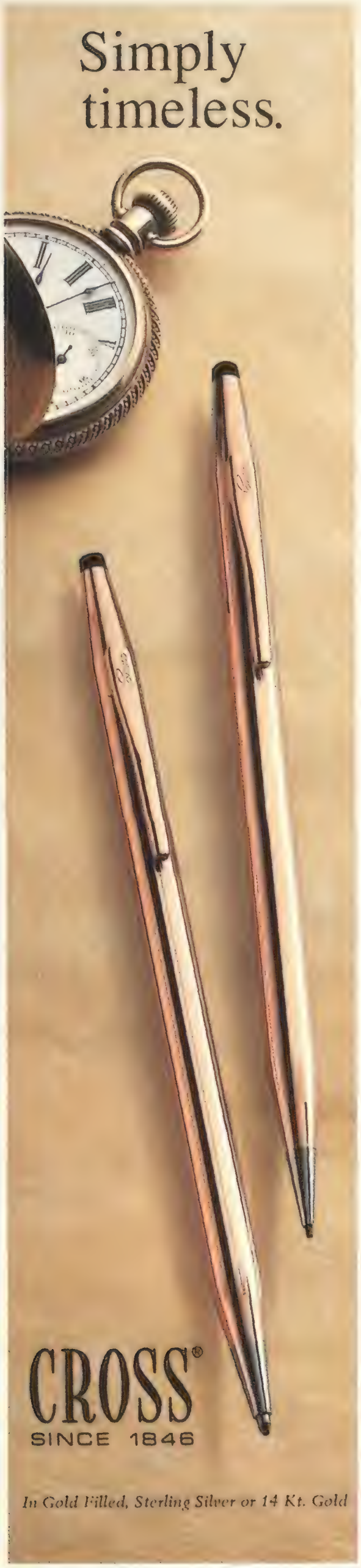

Beaverton, Oregon, or Dothan, Alabama, or Calais, Maine, he would have found just as much to stir him as he did in Santa Fe. The warmth that he expressed was in his own eye.

But there certainly was a lot of talent floating around in Santa Fe in those days, and there still is. Among the old capital's regulars were D. H. Lawrence, Aldous Huxley, Carl Jung and Aaron Copland.

The art show about Sloan in Santa Fe stays about a month in Jacksonville, then crisscrosses the country for two years, settling down at 15 different places for roughly month-long visits. If that doesn't seem arithmetically accurate, remember that a couple of weeks are required between towns. The show does get to Santa Fe, incidentally, in the fall of 1982.

Another SITES extravaganza, opening at Miami Beach on the tenth of this month, is entitled "Good as Gold." That's an inspired name for an exhibit of American jewelry made of "alternative materials"—that is, metals, glass, plastic and other things that do not have their prices announced by financial commentators with whistles of astonishment.

The show originally was planned as a small exhibit for the Renwick Gallery in Washington. When it became apparent that the show was growing too large for its intended space and scheduling became complicated, Renwick director Lloyd Herman offered to serve as guest curator if SITES wanted to organize a show. The result is that "Good as Gold" opens at Miami Beach's Bass Museum of Art, then settles down at the Renwick from December 3 to March 28 before moving on.

Lloyd Herman led me to a mysterious Smithsonian warehouse in the backwaters of Washington (I didn't even know we had the place) to get a preview of the display. We found SITES people going over carefully catalogued pins, belt buckles, brooches, necklaces, bracelets and other enjoyable items, all marvelously wrought from stainless steel, iron, titanium, another space-age metal called niobium, plastics, glass, papyrus, aluminum siding, formica, enamel, cardboard and corn husks. I haven't got a handle on all of them, either.

I recall a brightly painted papier-mâché armlet with ludicrously twisted fingers to give it the effect of a sort of third arm. There was a crocheted squid. There were bracelets bearing three-dimensional scenes fashioned by several

Never say never

A friend in Washington

✣ ✣ ✣

Washington's Fairfax Hotel has a Concierge who takes little stock in words like "booked," "sold out" or "impossible."

✣ ✣ ✣

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Item: Inauguration Night and a guest has forgotten her evening slippers. She rings up Christiane. Like sisters, they trade shoes.

Item: A guest's dinner jacket has been besmirched with bouillabaisse. Can he have it cleaned before dinner? Oh, and AND NO STARCH can he get his dress shirt washed and ironed, too? Of course. Gladly.

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Georgia—**Bailey Banks & Biddle**, Atlanta

Hawaii—**Granat Bros**, Honolulu

Illinois—**Bailey Banks & Biddle**, Chicago

Kentucky—**Bailey Banks & Biddle**, Louisville

Louisiana—**Rider's**, Shreveport

Maryland—**Bailey Banks & Biddle**, Bethesda, Gaithersburg

Massachusetts—**Stowell's**, Springfield, Boston

Michigan—**Wright Kay**, Birmingham, Dearborn, Grosse Pointe

Missouri—**Hess & Culbertson**, Springfield, Frontenac

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Oklahoma—**Peacock**, Oklahoma City

Oregon—**Zell Bros.**, Portland

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different layers of titanium. If you find that difficult to envision, go see it. There was an enamel doll with alternative enamel dresses—a hard, solid version of the old cutout doll with cutout dresses that you used to find in the comic pages. There was a circular collar made of strips of stainless steel joined together by silver hinges so that it drapes like a Dali watch. The reverse side is copper (which is pretty expensive stuff these days, come to think of it).

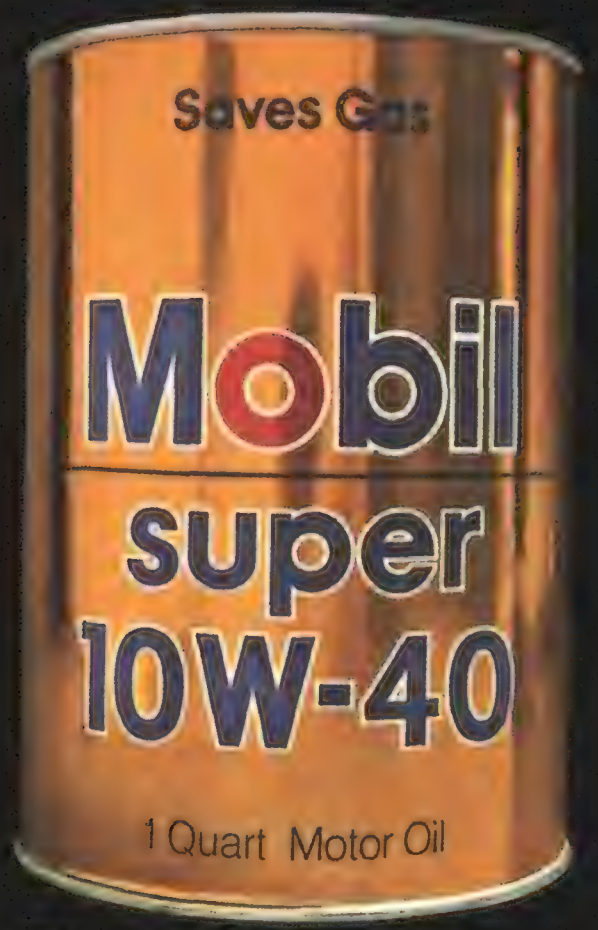
Perhaps most intriguing of all are items of jewelry made from "found objects." Say you're a jewelry maker, bent on fashioning something that requires ivory. But, for very good reasons, no fresh ivory is allowed to enter the country. So you go to a flea market and scrounge around for old piano keys or dominoes or ivory buttons and put together your ivory necklace. I'll admit you have to be luckier at the flea market than I ever am.

Anyway, "Good as Gold" displays this item, also a pin featuring industrial diamonds mounted on a small square of handmade paper, also a belt of plastic-covered electrical wiring that buckles with the little jaw clips that snap onto battery terminals, also a something-or-other made by placing a square of bright tapestry inside the plastic frame for a photographic slide.

The variety seems endless—and endlessly pleasing. These are the sort of designs that are so confoundedly *reasonable* that you can't understand why you aren't doing them yourself. Any *fool* should be able to produce something good from a slide framing mount.

Elsewhere in this issue (p. 92) there is an article about the battle of Yorktown. One small addendum is in order. Many of the regiments that fought at Yorktown for the British, French and Americans have military descendants today—army units that can trace lineage back to that event in October 1781.

The German mercenaries who fought so well there are an exception. Two World Wars have so changed German military organization that the heritage can't be traced. But the French, who keep good military records, have traced their American regiments to the numbered units of today with relatively few gaps. The Bourbonnais, for example, are now the 13th Regiment of Infantry; the Soissonnais are the 40th; the Saintonge



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are the 82nd. I can't find my copy of that book about Verdun which would have indicated which of these served in that dreadful campaign in World War I, but elements of the 65th Infantry ran into German panzers in the bad days of 1940 and were sadly sliced up. The 65th is believed to go back to the Régiment d'Armagnac which fought in America.

The British units have gone through lots of consolidation since 1781, but some units are clearly traceable. The 23rd, or Royal Welsh Fusiliers fought at Waterloo, in the Sepoy Rebellion, at the relief of Ladysmith in the Boer War, on the Somme in 1916 and beside the Americans and Canadians on D-Day, 1944. The 43rd (Monmouthshire Light Infantry) also landed at Normandy as the Oxfordshire Light Infantry. They're now the Royal Green Jackets. The 33rd and the 76th (MacDonald's Highlanders) became the Duke of Wellington's Regiment (West Riding) and fought on the Somme in 1916. In World War II they were at Anzio and some were Chindits in Burma—the famous jungle fighters.

One Canadian outfit still exists. The Queen's Rangers, which surrendered at Gloucester Point, across the York from Yorktown, were already descended from famed Rogers' Rangers of the French and Indian Wars. They still exist as the Queen's York Rangers, 1st American Regiment, Royal Canadian Armored Corps.

Four American units are able to carry the Yorktown battle streamer. In the Regular Army, the 1st Battalion, 5th Field Artillery traces itself back to Alexander Hamilton's battery which at Yorktown was called Dowdy's Company. More recently, the unit was at North Africa, Sicily and Normandy.

The 119th Signal Battalion, Delaware National Guard, descends from two companies of Delaware Continentals. They served in the Pacific in World War II. The 175th Regiment, Maryland National Guard perpetuates two regiments of that state's Continentals at Yorktown. And the 116th Virginia National Guard was spawned from Virginia's militia, also at the last battle. These last two regiments were in the Meuse-Argonne campaign of the First World War and at Normandy in the Second. So they fought beside their old foes of redcoat days.

And that's all you'll hear from us about Yorktown until 2081.

Edwards Park

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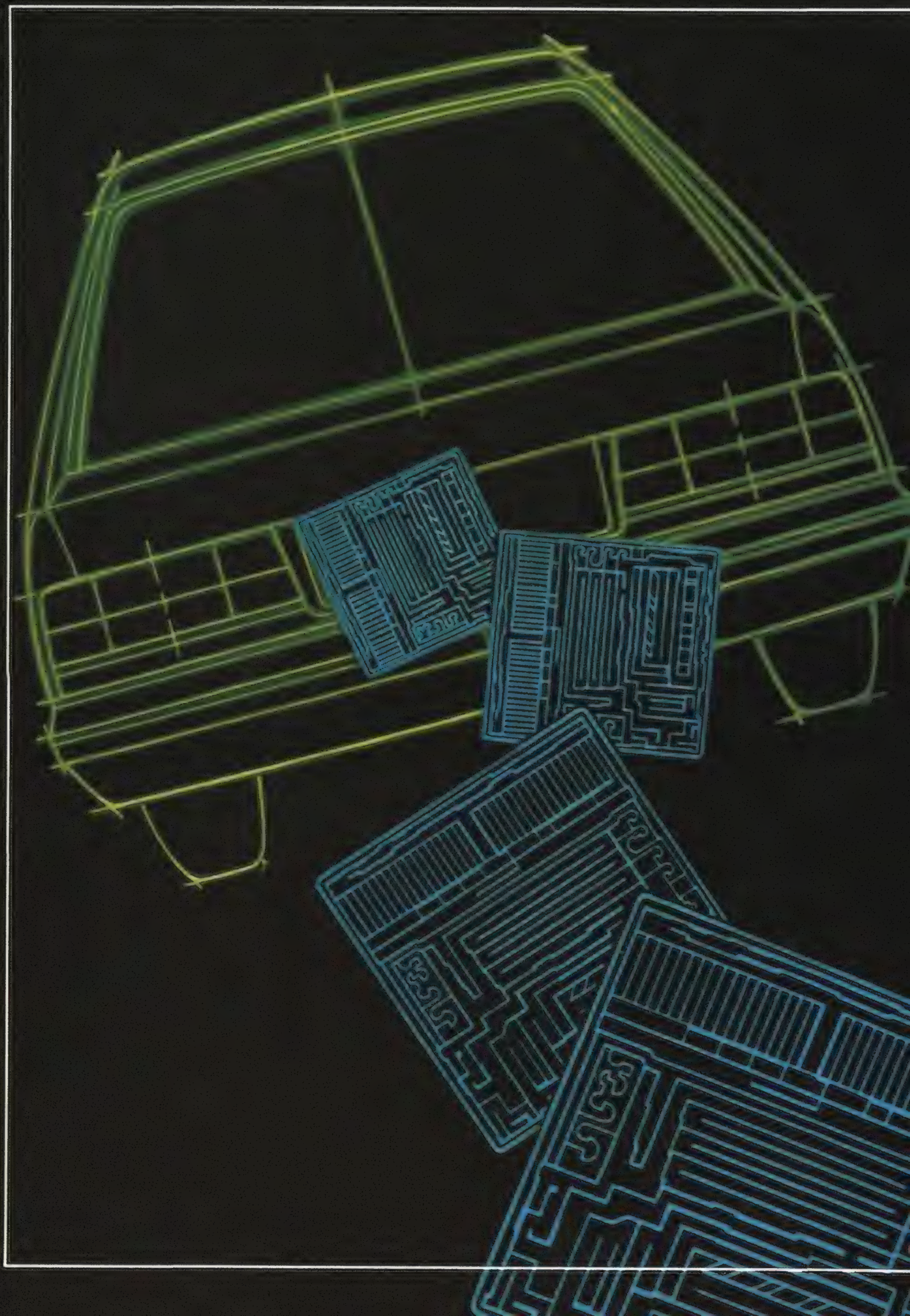

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Phenomena, comment and notes

Time travel and Papa Joe's pipe: ideas on the speed of light and whether you can get there from here

When astronomers point their telescopes to the nearest large galaxy, Andromeda, they see it as it was two million years ago. That's about the time Australopithecus was basking in the African sun. This little bit of time travel is possible because light takes two million years to make the trip from there to here. Too bad we couldn't turn things around and observe Earth from some cozy planet in Andromeda.

But looking at light from distant objects isn't real time travel, the in-the-flesh participation in past and future of Mark Twain's Connecticut Yankee or H. G. Wells' Time Traveler. Ever since I've been old enough to read science fiction, I've dreamed of time traveling. The possibilities are staggering. You could take medicine back to 14th-century Europe and stop the spread of plague, or you could travel to the 23rd century, where people can take their annual holidays in space stations.

Being a scientist myself, I know that time travel is quite unlikely according to the laws of physics. For one thing, there would be causality violation. If you could travel backward in time, you could alter a chain of events with the knowledge of how they would have turned out. Cause would no longer always precede effect. For example, you could prevent your parents from ever meeting. Contemplating the consequences of that will give you a headache, and science-fiction writers for decades have delighted in the paradoxes

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that can arise from traveling through time.

Physicists are, of course, horrified at the thought of causality violation. Differential equations for the way things should behave under a given set of forces and initial conditions would no longer be valid, since what happens in one instant would not necessarily determine what happens in the next. Physicists do rely on a deterministic universe in which to operate, and time travel would almost certainly put them and most scientists permanently out of work.

But even within the paradigms of physics, there are some technical difficulties for time travel, over and above the annoying fact that its existence would altogether do away with science. The manner in which time flows, as we now understand it, was brilliantly elucidated by Albert Einstein in 1905. First of all, Einstein unceremoniously struck down the Aristotelian and Newtonian ideas of the absoluteness of time, showing that the measured rate at which time flows can vary between observers in relative motion with respect to each other. So far this looks hopeful for time travel.

Einstein also showed, however, that the measured time order of two events could not be reversed without relative motions exceeding the speed of light. In modern physics the speed of light, 186,000 miles per second, is a rather special speed; it is the propagation speed of all electromagnetic radiation in a vacuum, and appears to be nature's fundamental speed limit. From countless experiments, we have failed to find evidence of anything traveling faster than light (SMITHSONIAN, November 1976).

There is another possible way out. In 1915 Einstein enlarged his 1905 theory, the Special Theory of Relativity, to include the effects of gravity; the later theory is imaginatively named the General Theory of Relativity. Both theories have remarkably survived all the experimental tests within our capability (SMITHSONIAN, April 1980). According to the General Theory, gravity stretches and twists the geometry of space and time, distorting the temporal and spatial separation of events.

The speed of light still cannot be exceeded locally—that is, for brief trips. But a long trip might sneak through a short cut in space created by gravitational warping, with the net result that a trav-

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eler could go between two points by one route in less time than light would require by another route. It's a little like driving from Las Vegas to San Francisco, with the option of a detour around Death Valley. In some cases, these circuitous routes might lead to time travel which would, indeed, raise the whole question of causality violation.

The catch is that it is impossible to find any concrete solutions of Einstein's equations which permit time travel and are at the same time well behaved in other respects. All such proposals either require some unattainable configuration of matter, or else have at least one nasty point in space called a "naked singularity" that lies outside the domain of validity of the theory. It is almost as if General Relativity, when pushed toward those circumstances in which all of physics is about to be done away with, digs in its heels and cries out for help.

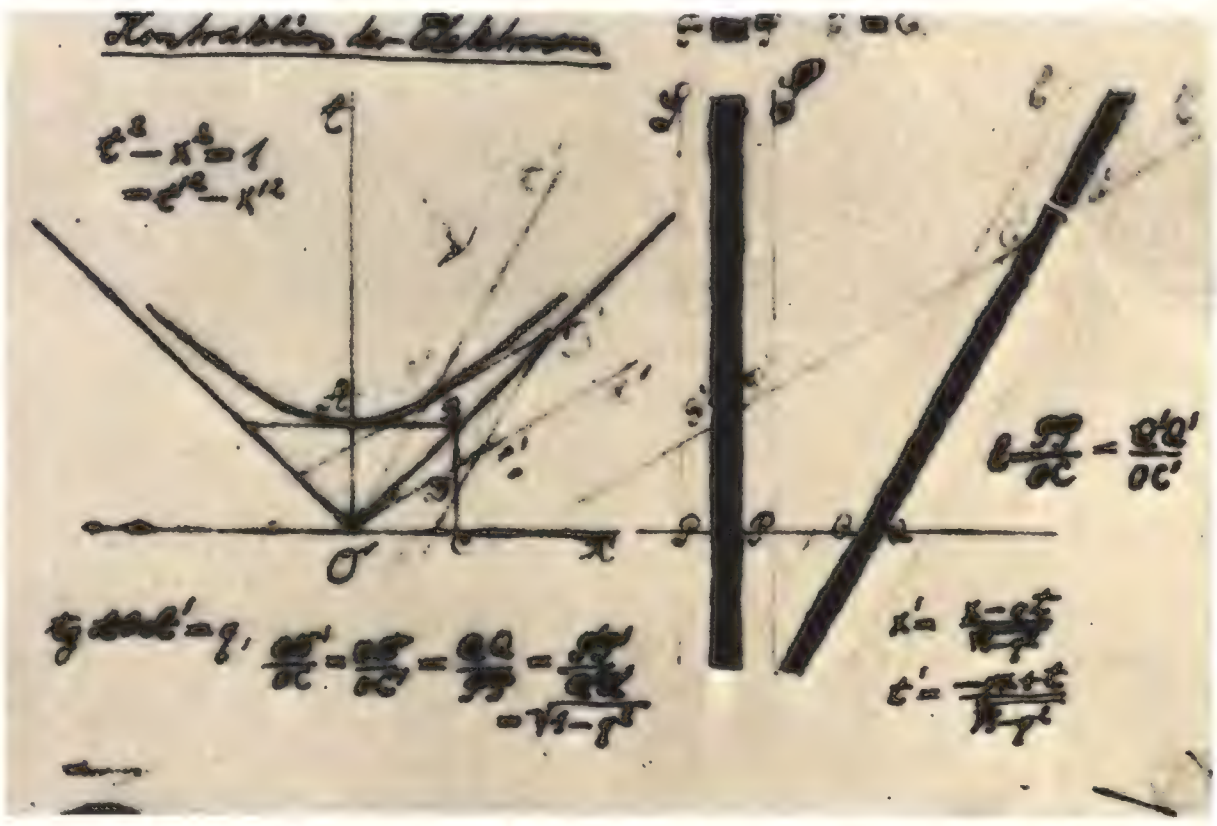
Still, I dream of time travel. There is something very personal about time. When the first mechanical clocks were invented, marking off time in crisp, regular intervals, it must have surprised people to discover that time flowed outside of their own mental and physiological processes. Body time flows at its own variable rate, oblivious to the most precise hydrogen master clocks in the laboratory.

In fact, the human body contains its own exquisite timepieces, all with their separate rhythms. There are the alpha waves in the brain; another clock is the heart. And all the while tick the mysterious, ruthless clocks that regulate aging.

Nowhere is the external flow of time more evident than in the space-time diagrams developed by Hermann Minkowski, soon after Einstein's early work. A Minkowski diagram is a graph in which time runs along the vertical axis and space along the horizontal axis. Each point in the graph has a time coordinate and a space coordinate, like longitude and latitude, except far more interesting. Instead of depicting only where something is, the diagram tells us when as well.

In a Minkowski diagram, the entire life history, past and future, of a molecule or a man is simply summarized as an unbudging line segment. All this on a single piece of paper. There is something disturbingly similar about a Minkowski diagram and a family tree, in which several generations, from long dead relatives to you and your children, move inevitably downward on the page. I have this urgent desire to tamper with the flow.

Recently, I had the good fortune to find the favorite pipe of my great grandfather. Papa Joe, as he was called, died more than 50 years ago, long before I was born. There are no surviving photographs or other memorabilia of Papa Joe. But I do have this pipe. It is a fine old English briar, with a solid bowl and a beautiful straight grain. And it has a silver band at the base of the stem, en-



This slide, presented by Hermann Minkowski in 1908, is a representation of both space and time. Such space-time diagrams are now commonplace in physics.

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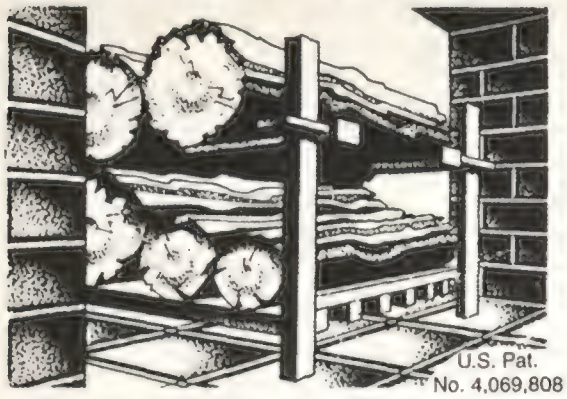

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For full scientific description, see L. Cranberg, Am. Jour. Physics, June '81. Reprints on request.

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graved with three strange symbols. I should add that in well-chosen briar pipes the wood and tobacco form a kind of symbiotic relationship, exchanging juices and aromas with each other, and the bowl retains a slight flavor of each different tobacco smoked in the pipe.

Papa Joe's pipe was in good condition when I found it, having been tucked away in a drawer somewhere for years. I ran a pipe cleaner through it, filled it with some tobacco I had on hand, and settled down to read and smoke. After a couple of minutes, the most wonderful and foreign blend of smells began wafting from the pipe. All the various tobaccos that Papa Joe had tried at one time or another in his life, all the different occasions when he had lit his pipe, all the different places he had been that I will never know—all had been locked up in that pipe and now poured out into the room. I was vaguely aware that something had got delightfully twisted in time for a moment, skipped upward on the page. There is a kind of time travel to be had, if you don't insist on how it happens.

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The marriage ceremony—at least from the point of view of the human race—may be the most critical of all Man's elaborate rites. Rites of birth, adolescence and death all have about them a tincture of certainty: nature will bring them about whatever we do. But the process of taking a mate and engendering children is too important a matter to be left to nature.

The propagation of the species with any semblance of order or civilization has thus demanded a suitable ritual. Across all cultural barriers and ranges of geographic diversity, these rites have emphasized fertility, sought to ensure domestic peace, and even encouraged certain games and play to underscore the communal aspects of the coupling. The surprise is that the majority of marriage festivals and ceremonies still include a healthy dose of elements from and allusions to those early performances.

One of the first broad-scale catalogs of these rites appeared in England in 1822. Written by a Lady Augusta Hamilton, it was modestly titled *Marriage Rites, Customs, and Ceremonies of all Nations of the Universe*—which pretty much covered the lot.

Travelers' journals, literary classics, and eyewitness accounts were Hamilton's sources, which she often reproduced verbatim with a charming lack of skepticism. Her account of Athenian marriage customs contains most of the facets we have come to see as important. The bridal house was decked with flower garlands and a pestle was tied to the front door. The bride bought a sieve and a handful of barley to be ground, to show that she was ready for domestic life. Together, the couple ate a quince, to signify that their talk should always be agreeable and peaceful. And the axle of the bride's carriage was ceremonially burned, severing the ties between her old and new life.

In the century and a half since Augusta Hamilton, her work has been superseded by anthropologists, literary scholars and folklorists. Not surprisingly, a great deal of their interest has centered on fertility. Consider the orange blossoms that are the chosen flowers for bridal bouquets among many cultures. A classical legend widely believed during the late Middle Ages and Renaissance said that Jupiter gave Juno the orange at their wedding. Orange trees have always been a symbol of fertility and fruitfulness since they are both evergreen and ever blossoming.

Curiously, games—especially those that involve throwing things—are often associated with weddings. Roman bridegrooms threw nuts at young men in the ceremonial procession. Today, we throw the bouquet and rice (which, being seedlike, is an obvious fertility symbol) and garters. The garter throw may hearken back to the Middle Ages and Renaissance, when an important part of the marriage festival was the throwing of the stockings. In those days, it was the custom of the bridesmaids and male attendants to accompany the wedding couple to the marriage chamber, tuck them in bed and then play a little game. The contest was for each participant to turn away from the reclining couple, toss a bridal stocking over the shoulder, and attempt to hit either the bride or the groom. This game, recorded in 15th-century England, lasted until either the bride or groom was hit on the head, or nose, with his or her own stockings. The winner was slated as next to be married.

By contrast, in old Germanic weddings, the slipper of the bride was thrown. Earlier, the bride's slipper or shoe had been an important part of the Anglo-Saxon marriage ritual. As part of the wedding dowry, this token was handed over to the husband, who ceremonially knocked his bride on the head with it, and took it home to be nailed to the wall over the marriage bed. Clearly, this was a symbol of power. The more modern throwing of the slipper to the assembled wedding guests was thus a contest to decide the next couple to enjoy connubial bliss. Today, the tradition lives on only in the tying of shoes to the rear bumper of the departing honeymoon car.

Another custom, dating from the 16th century, was racing for the special ribbons that graced the bride's hair or her clothes. Immediately after the ceremony, the wedding guests would tumble and grab for these simple prizes, which conferred

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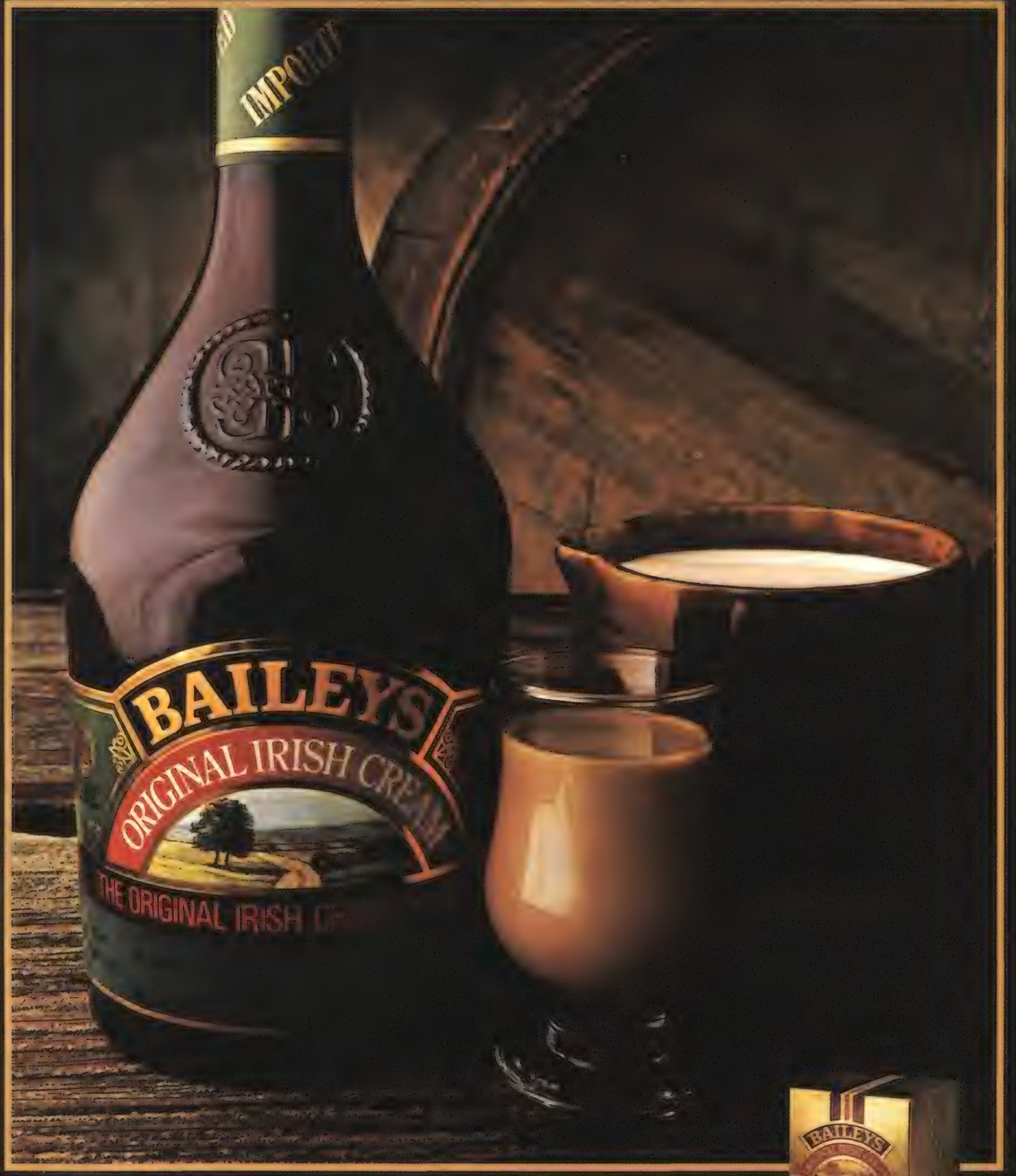

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upon the holders a sort of "king or queen for a day" stature. In fact, the tumult and racing started so soon after the last words of the ceremony that ecclesiastical authorities were hard pressed to keep the game out of the church and churchyard proper. The antecedents of this game were even more raucous, as the young men strenuously competed at the altar for the bride's garters, which had been decorated with gaily colored ribbons.

As a diversion, the custom of nuptial sports in the countryside arose. Special bridal ribbons, not part of the bride's costume, were made. These were specifically created to be contested for by the nubile among the wedding party. An old parishioner in Danby, England, was horrified in 1851 when he witnessed a group of stark naked village lads contending for these bridal prizes. But this was a custom that had been going on for some time, and thus was accorded a certain seal of approval from the folk. No snickers allowed.

Other marriages of the 18th century were celebrated with a race out of the church door and on to the wedding feast at home, perhaps as much as ten miles distant. To the winner went the first piece of bridal cake, or cup of soup or porridge—some tangible reward to the swiftest. The 16th century saw the association of the sport "quintain" with marriage festivals. Quintain had been a medieval game that taught proper lance handling to young knights. In it, a youngster missing a mechanical target was struck from behind by a reciprocating arm weighted with a sandbag (SMITHSONIAN, June 1981). Apparently, this game became a feature of rural weddings, in obvious parody of the royal tilts that occupied the attention of the fashionable at aristocratic marriages.

The wedding ring itself has a curious history. Originally, its circularity symbolized a kind of endless constancy, a characteristic that would bring longevity to the union. In England, tiny pieces of wedding cake were sometimes pushed through the wedding ring. A wedding custom among agricultural peoples was the game of dipping ladles for a ring dropped into a bucket of syllabub, a festive drink of milk and wine. This had much of the lottery about it. The lucky finder of the ring would be next at the altar, a dicey proposition to say the least.

The wedding cake itself also figures in a kind of aleatory game. A coin or ring would be mixed into the dough and

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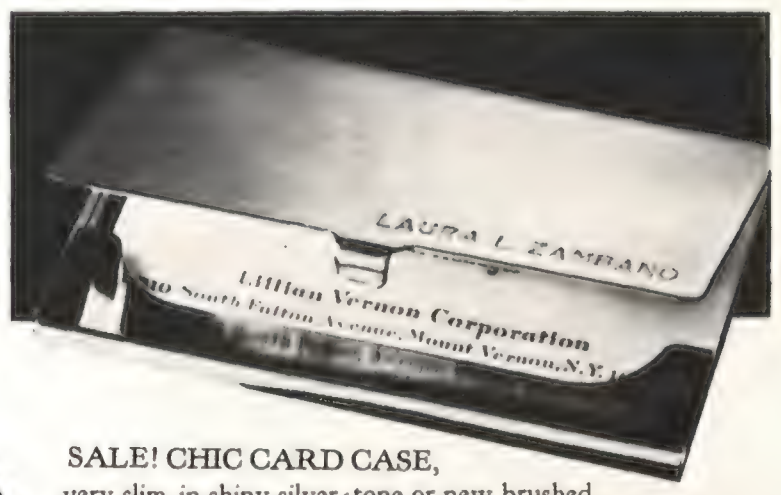

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baked into the cake. All things were possible for the guest who was dealt the lucky piece of cake containing the token. An ancient Russian wedding game was for a bride to take off her husband's boots on the wedding night. One contained a jewel; the other a whip. Pure chance would determine whether a joyful partnership or a life under the husband's domination would ensue.

The tradition of "sixpence in my shoe" was thought to confer similar luck on English brides. In fact, the full text of this custom reads:

> Something old, something new
> Something borrowed, something blue
> And a silver sixpence in your shoe.

It sounds like it has the wisdom of the ancients compressed in its three short lines, but actually was first mentioned in connection with weddings late in the 19th century, as Ann Monsarrat suggests in her survey of wedding history, *And the Bride Wore. . .* We can recognize the origin of the color blue in the line from the adage "Married in blue, love ever true," but the old, new and borrowed are a puzzle. Silver is associated with the moon and the huntress Diana, Roman patroness of unmarried girls and chastity. In France, marriage couples were escorted to the church surrounded by a silver chain; and in German villages, a bridal cake was baked with a silver coin in it and given to the oldest inhabitant to avoid the evil eye. In American folklore, a silver dime was either swallowed or worn about the neck or in the shoe. Are all these cases holdovers from some ancient bribe to buy off Diana's wrath?

Such may be the stuff of superstition, but the customs persist to this day. In backwoods America it is believed that the first of the bridal pair to step down from the altar will be the first to die. And the idea of lifting the bride over the threshold can be seen in worldwide cultures—from North America to Asia and Africa. The rite had two purposes: to show the bride's kinfolk that she was only unwillingly abandoning them; or to avoid the bad omen for life that would attend an accidental stumble at the doorstep.

The question is: how did all these customs survive, especially since they were handed down informally? The answer is bound up in society's needs. Mainly, it needed people. And not just loners raised singly by forest wolves, so to speak.

Michael Olmert

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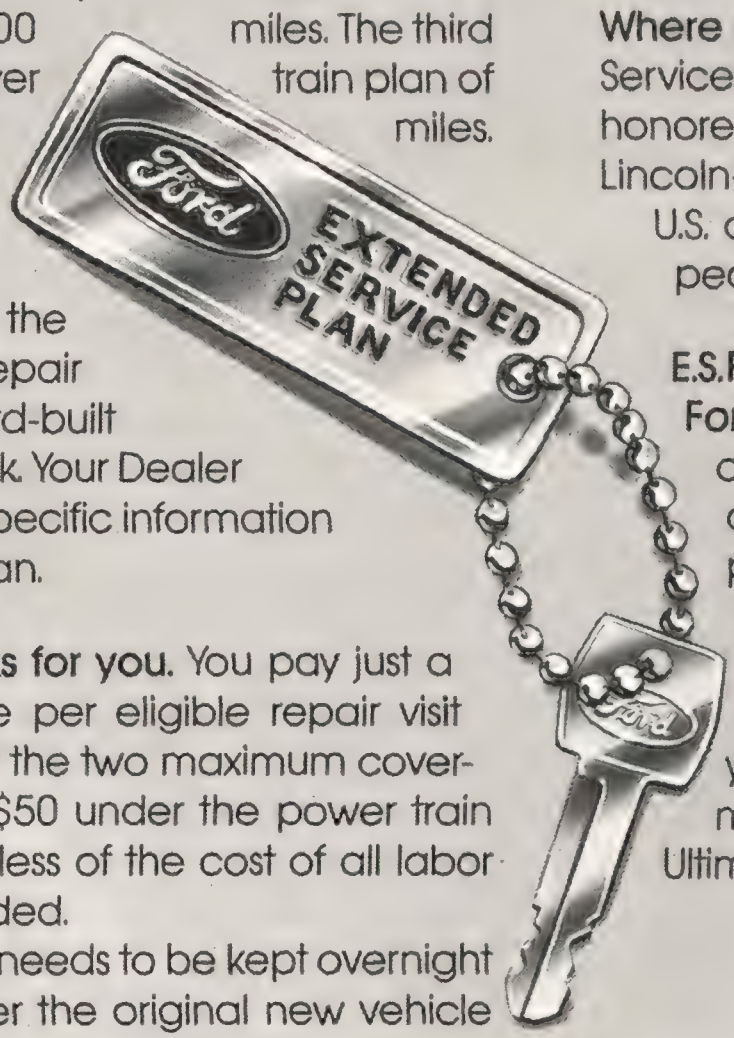

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A Korean battlefield, appropriately named Bloody Ridge, testified to the destruction of war. But 28 years later battlefields in the Demilitarized Zone have become a wildlife sanctuary.

Manchurian crane, symbol of happiness and long life to generations of Koreans, flies serenely over long-quiet battlefields. Perhaps half of this species' known members winter in or near the DMZ.

By David R. Zimmerman

A fragile victory for beauty on an old Asian battleground

Korea's tense Demilitarized Zone has become a refuge for threatened cranes and other wildlife, but the future holds uncertainty

The last step before we set out was for me to wrap a white armband around my right upper arm. The youthful army sergeant assigned to be my military escort spoke little English. But he made it unmistakably clear that *right* was the specified arm upon which to display my nonbelligerent, news-gathering status.

I was embarked on an extraordinary bird walk. The area we were about to enter was the Korean Demilitarized Zone, the DMZ. My purpose in coming to this tense, highly restricted place was to look at wildlife.

The DMZ, surprisingly, is of great environmental interest. In the quarter century since it was demarcated by the Armistice Agreement that ended the 1950-1953 Korean war, the DMZ has been a no-man's-land: most civilians and civilian activities are barred.

This area had been heavily settled and farmed. Then it was heavily fought over. Then it was left alone.

Nature heals.

Battlefields become a sanctuary

Hidden in a blind, ornithologist George Archibald peers through telescope at one of world's rarest birds.

White-naped crane (left) and Manchurian crane contest boundaries of their feeding areas in a marsh.

The result is that the DMZ now is regrowing as forest, meadow and marsh. It has become a magnificent sanctuary for many wild species, including two cranes that are among Korea's grandest birds, and for a time, at least, a hospice for perhaps the last Korean survivor of one of the world's most endangered avian species. Ironically, they appear to have become endangered as a result of South Korea's economic boom and population explosion. The DMZ saves them.

This extraordinary state of affairs first had been called to my attention by a friend, George W. Archibald, a young Canadian-born ornithologist and conservationist now living in Wisconsin. In a report to the World Wildlife Fund after his first visit to Korea in the winter of 1974-75, he ecstatically declared: "This no-man's-land . . . has quite inadvertently become one of the world's greatest wildlife paradises."

The passion of George's life is cranes—huge, elegant, graceful birds. He is largely responsible for the discovery that healthy populations of the two crane species that have vanished from the South Korean countryside nevertheless ensconce themselves each winter inside the DMZ and adjacent militarily restricted areas.

It now was the tail end of winter, pussy willow time in Korea, and the DMZ cranes soon would fly north to Siberia, Mongolia and northern China to breed. George, who was winding up his winter's field work in the vicinity, introduced me to his friend and my official DMZ escort from the Republic of Korea (ROK) Army, Sergeant Yang Chan-Yo.

The sergeant was unarmed. But he carried a walkie-talkie, with which we could contact the United Nations Command (UNC). American and ROK forces conduct their side of the truce under U.N. authority.

Our starting point was Camp Kitty Hawk, the UNC's forward base, astride the road to the Panmunjom truce village where it enters the DMZ. George had lived here through the winter, and his work and my visit both were made possible by the generous interest of the officers there.

While the day is mild, it still is too soon for new, spring green to be seen. The landscape's predominant colors are the browns of dead foliage and persisting winter grays in the sky, soil and ice-tinged pools of standing water that are scattered across the Panmunjom valley, in which we are walking.

Almost at once we see our first rare birds: a pair of Manchurian cranes (*Grus japonensis*). The species commonly is called "Japanese crane," but Koreans resent this name, because the Japanese occupied their country for much of this century.

The cranes that we have come upon are wading, foraging for small fish, in shallow pond water a few hundred yards from the road. Even here, where they are safe, they seem wary of humans and stay far enough away to be hard to see with binoculars or the unaided eye. A 60-power spotting telescope pulls the huge birds into intimate view.

These great white cranes are among the largest flying birds: an adult Manchurian crane is as tall as a man when it stands up straight. It weighs close to 30 pounds. Yet, suddenly, the pair we are watching are dancing, lightly. They are expressing springtime urgings that soon will lift them out of the DMZ, and Korea, for the long flight to their breeding grounds—also on politically tense terrain—along the Amur and Ussuri rivers. They are imperiled there, as here, by agricultural and industrial development.

The cranes we are watching flap their wings. They hop straight up and down. They bend. They bow. Their loud, trumpeting, bugling calls easily reach us across the still marshland.

We creep forward, trying to keep brush and hillocks between us and the birds. They nevertheless soon see us. After a few alarm calls, they rise hurriedly.

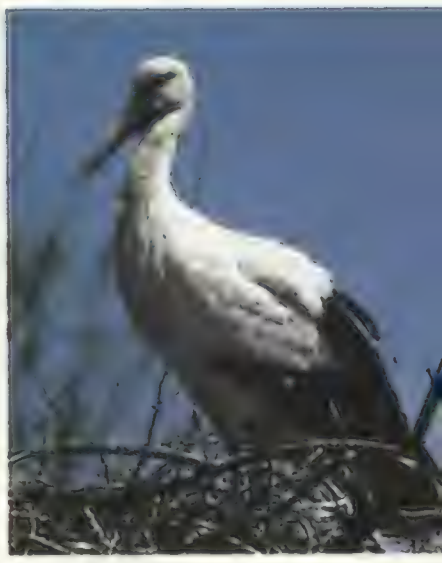
The disproportion between huge body, long neck, and small head quickly dissolves as they stretch out, arrowlike, against the horizon (p. 57). Their wings follow rhythmically—powerfully—through on the downstroke, propelling them rapidly across the sky.

As the birds vanish over a ridgeline, my gaze drops back to the terrain through which we are trekking. The terraced lower hillsides and valley floor are divided by earth dikes into paddies. I had pictured the DMZ as wholly abandoned land.

It is, except for the immediate environs of the Panmunjom meeting area, where we are walking. The Zone's geographic and biological configurations become clear when we climb a small hill that commands a wide view: north and south of us, two parallel defoliated lines march east and west across the countryside. The DMZ is the area between these lines. It is 4,000 meters deep from north to south, and winds 151 miles from east to west across the peninsula, at roughly the 38th parallel.

The northern half of the zone belongs to North Korea; the southern half to the South. The mid-

David Zimmerman, a New York writer, discussed enlisting sandhill cranes to raise whooping cranes in the September 1978 issue of SMITHSONIAN.



Among the teeming birdlife in the DMZ are to be seen, from left to right, a gray heron, a lapwing in winter plumage, two whooper swans, and a white stork at its nest. Noise of the birds sometimes is deafening.

line, between them, which precisely bisects the Panmunjom negotiating tables, is marked by rusting yellow signs.

Across the Military Demarcation Line (MDL), near a sparkling small lake on which two whooper swans float serenely, a North Korean soldier looks down at us through binoculars. The area feels reassuringly tranquil, until I remember that "incidents," choreographed elsewhere, can—and do—erupt in an instant.

Winter-bare hardwood trees, oaks and maples, and pines have grown up here to heights of 40 to 50 feet. This may seem unremarkable. But these were the tallest, wildest forest patches that I was able to see in Korea. They certainly account for the abundance of small wintertime birds—kinglets, woodpeckers, tits and buntings—and the larger magpies, kites and crows.

These low ridges were trenched, blasted and burned during the standstill battles fought here in the last two years of the war. A few charred stumps remain; the hillsides still are pitted in places. But most of war's detritus has vanished. All there is to see are occasional bits of rusting barbed wire, and a patch of bare brown earth into which thousands of rusty cartridge links slowly are sinking.

Most of the trees throughout Korea were cut down, to deny cover to the enemy during wartime, and to clear the land and provide fuel during war and peace. Even now, despite a law that forbids cutting, much of the countryside exhibits what U.S. ecologist Harold J. Coolidge has called a "scalped" appearance. Reforestation consists largely of monocultural plantings: saplings march up the hills in stiff rows.

By contrast, the DMZ's unplanned arboreal regrowth is mixed and irregular—and so attracts animals, as well as the human eye. A scant dozen years after the war ended, Coolidge decribed the DMZ as "a natural green area abounding in wildlife [owing to] a remarkable development of small pines, brush and erosion control with heavy strands of grass." He added, wryly:

"The fact that it is on a vast minefield where patrols can only penetrate on well-marked paths has made it into a unique area for ecological study. Facts may be learned that will help in future habitat restoration, if you can make such studies without getting blown up in the process."

To George, the DMZ's wild restoration is proof that nature heals itself, without human management. "If they don't cut it," he exclaims, "can you imagine what this forest will be like in a hundred years!"

What struck me is how ordinary and unexotic this terrain really is, given the extraordinary conservation role that it has come to play. The sandy hills and scrubby trees reminded me of home, in the northeastern United States: Cape Cod, or the New Jersey Pine Barrens. Actually, much of the DMZ, like much of the Korean peninsula, is mountainous, and no scientist has gained access to these highlands to see what wild treasures they harbor. But the cranes and other grallatorial (wading) birds congregate in smaller, lowland areas: the Panmunjom valley shelters 40 Manchurian cranes. A larger group winters eastward, in the wide Chorwon valley, by Pork Chop Hill, where American GIs fought some of their most heroic battles.

I was able to visit Chorwon several days later with Korea's preeminent ornithologist, Won Pyong-Oh, of Kyung Hee University in Seoul. From a hilltop lookout high over the valley, Won pointed out to me 90 of the great white birds. They were feeding in rice paddies a few hundred yards south of the DMZ.

A third, small group of Manchurian cranes winters on vast mud flats by the Yellow Sea port of Inchon, a few miles south of the DMZ. The dozen or so Inchon birds are the only Manchurian cranes—other than the

three in the Seoul zoo—that ordinary South Korean bird lovers have even a remote hope of seeing. But the best vantage point, a land spit, is reached by a muddy, stony road, which has a restricted army base on one side, and a huge tank where human waste is collected for fertilizer on the other. The odor is choking.

For Koreans, these birds are valued cultural and artistic objects. They symbolize long life and happiness, and regularly are represented on Christmas and New Year greeting cards. They often appear, too, on silk and ceramic art objects, and in the trademark of Korea's national airline. The greater is the irony, therefore, that they were allowed to vanish from sight without a ruckus being made to protect them.

Archibald estimates that the 170 Manchurian cranes that winter in and near the DMZ are about half of the species' known surviving members. Some others may spend the winter wholly inside North Korea; George doesn't know, but wants to find out. The rest are nonmigrants on the Japanese island of Hokkaido.

Within living memory there were many more, perhaps thousands, of these cranes throughout Korea in winter. But by 1971, when ornithologist Won and his British coauthor Michael E. J. Gore published their definitive *The Birds of Korea*, six or eight Manchurians were the most they could spot in a single day—and there was fear that the end was in sight. Rediscovery of substantial numbers of the birds inside the DMZ raises hopes.

The DMZ ends, dramatically, a dozen or so miles west of Panmunjom, in a vast area of silver-gray mud flats, marshy islands and extensive tidal waters. This is the estuary of South Korea's principal river, the Han. Tides rise here more than 25 feet—the world's highest outside the Bay of Fundy—creating a vast intertidal paradise for wading and amphibious birds.

The Han River estuary also is a demilitarized area. The North controls the seaward side, the South, the landward. As a result, the once-busy Han has been wholly closed to river traffic and to channelization, which easily could mar its fragile estuarine ecosystem. This closure thus protects a second Korean and east Asian crane species, the white-naped.

These cranes are slightly smaller than the Manchurians, and more silvery gray than black and white (pp. 64-65). They feed largely on a single, unprepossessing species of marsh grass, or sedge, whose tubers they dig out of the mud and sand. The plant lives only at the upper end of the tidal zone, where the rising salt water will bathe its roots, but leave its crown uncovered. Sedge and crane once were common all along Korea's western and southern coasts, George says, but now are found in winter only here, on the Han.

The authoritative Gore-Won Korean bird guide had reported the white napes "decreased" in number and "rare" three years before. The authors' highest count had been 30 birds. The chief of Korea's National Parks Association, zoologist Kim Hon Kyu, subsequently discovered the Han River congregation, which swells to 2,500 cranes in autumn when migrants bound for Japan put down for food and rest.

These cranes breed in Siberia and northern China,

Japanese crested ibis, here probing for food, eluded all efforts to catch it for captive breeding program.

Korean conservationist adjusts decoy that fooled the ibis only once.

George Archibald joins in dance of white-naped cranes at International Crane Foundation in Baraboo, Wisconsin. He has made it his life's work to save endangered cranes throughout the world.

and also in Mongolia where, George says, they are much-loved and so quite tame. They are less tame in winter, both in Korea and in Japan, where they may face greater hazard, and where the salt marshes and sedge tubers are gone so that they must subsist on handouts of corn.

The day I visited the Han River, with George and Professor Won, crane families—these birds mate for life—were spread across the cold salt meadow, digging tubers. Some adult pairs still were accompanied by their brownish-colored offspring of the previous year.

Each family fed in and aggressively defended a several-acre plot. When one crane ventured to intrude in a neighbor's territory, as they often do, a tense face-off quickly blew up at the "DMZ" between them.

These scrappy cranes, it turns out, were rediscovered on the Han in the nick of time. Their feeding marshes south of the DMZ were slated to be diked—and thus destroyed—for rice. Up the river from our vantage point we could see the marsh-killing earth wall that ornithologist Kim, with help from George and Professor Won, had stopped from further advance.

A critical, 40-square-kilometer sector of marsh has been declared a national monument, and therefore is protected. George rates this as the most important conservation step that he has helped to achieve in Korea: the white-naped crane species appears to be safe for the moment.

In Korea, as in other countries where he works, George's efforts are about evenly divided between the birds in the field and the people in cities who determine their fate. George's job title might read: *Conservation activist, international.* His immodest goal, and life's work: "To save the cranes of the world."

This awesome task is complicated by the fact that the seven crane species—out of a total of 15—that now are listed as endangered have a predilection for difficult terrain in politically volatile areas. Crane work has taken George to Iran, Afghanistan, India, Japan and the Soviet Union in recent years; a trip to China pends. All are socially and politically complex nations, whose languages he does not speak.

One thing that helps him in potentially uncomfortable situations is his ability to relate to people in all walks of life. He seems particularly to like young people and often involves them in his work. In August George married a young Japanese conservationist, Kyoko Matsumoto.

George comes to his work with excellent credentials. His Cornell University doctoral thesis was on cranes' mating behavior. In the half-dozen years since, he has built a highly visible career as the world's preeminent crane conservationist.

The home base that George has established for crane conservation, and for himself, is the International Crane Foundation (ICF), a publicly supported, nonprofit organization. He and a Cornell schoolmate, Ronald Sauey, started ICF several years ago on the Sauey family's former Arabian horse farm, in the town of Baraboo, Wisconsin, north of Madison. The ICF—which is open to the public by appointment—already has become a world center for crane research

and breeding. Fourteen of the 15 crane species are kept there (the whooping crane of North America is the special ward of fish and wildlife agencies). All 14 species are bred at Baraboo, the endangered ones intensively. The 1981 season was one of the best ever, with 25 young birds hatched and reared in addition to a number of eggs sent elsewhere. Last June 4 Dushenka (Little Spirit), the first Siberian crane bred in captivity, was hatched.

George's aim, beyond research, is to build secure lines of each species, and then return eggs or young birds to depleted wild populations.

A homebody George is not. He has set ICF up to operate in his absence, so he can spend several or more months each year in the field. He brings the in-country bird people with whom he works modest grant moneys, and the all-important attention and recognition of the international bird and conservation communities, which sponsor his work abroad.

George has tried to engage the Korean public directly by founding a voluntary conservation group called Korean Council for Bird Preservation (KCBP). Ornithologist Won shares in its leadership with Lim Yun Kyoo, a Seoul shipping magnate.

The Korean government favors wildlife conservation as a matter of policy. The late president, Park Chung Hee, served as honorary president of the semi-official Korean Association for Conservation of Nature. Major legal and administrative steps are being taken to protect wildlife.

Ornithological diplomacy

Working partly in the old ways, through channels, and partly in the newer, more active vein, through the press and directly initiated contacts with government, George and ornithologists Won and Kim already have made great strides in protecting the rediscovered crane sanctuaries near the DMZ. Besides the Han River marshes that Kim saved for the white napes, a 33-square-kilometer sector of the Inchon mud flats has been protected for the Manchurian cranes against industrial destruction. Professor Won says there is a plan to save their Chorwon valley habitat, too. What have not yet been won are permanent, civil safeguards for the vital crane habitat inside the DMZ, on both sides of the MDL, which could be quickly ruined if a peace treaty were to end the need for a buffer.

The potential loss struck me forcefully on my first DMZ day, as Sergeant Yang and I surveyed the eerie military calm at the heart of Panmunjom valley.

The whole wide valley—dozens of square miles of paddies and marshland—extends outward toward a ring of sharply cut mountains in North Korea; their crevices and gullies are whitened by snow. Even with our binoculars and spotting scope we see no other people in this vast area. But wildlife abounds.

A brown, goat-sized mammal, a water deer, scrambles up a stream bank and scurries off. In soft sand by the water we find hoof prints of the deer, and pad marks of a small felid, a leopard cat, or perhaps a lynx. George, ever the optimist, claims the Korean tiger still may survive in the DMZ, but Korean mammalogists doubt this is so.

The birds number in the thousands, even perhaps in the tens of thousands. Most conspicuous are the geese. They are newly arrived from Korea's south coast, or perhaps from Japan—early migrants northbound toward Arctic breeding grounds. Brownish birds having black-and-orange bills are bean geese; birds with pink bills white-feathered at the base, and black banding on the underparts, are the more familiar white-fronted geese, the same species that commonly winters in the western United States. The

Student researcher Taisa Halibey with Manchurian chick that may go to Korea to breed with older birds.

Battlefields become a sanctuary

Male white-naped crane contorts for its mate at Crane Foundation; breeding has been very successful.

honks of the geese and the rush of the wind through their wings drown out all other sounds, as they rise from the marsh in formation, wheeling, turning, streaking out darkly against the sky.

Our presence makes the geese nervous. Perhaps more unnerving, I count three eagles—they are golden eagles, or perhaps white-tailed sea eagles—circling lazily above them. They watch for the incautious straggler, resting a moment too long on the marsh.

Kites, falcons and other smaller raptors also are abundant, as are ducks, sandpipers and small land birds and other prey creatures. I sense a sudden movement in the grass underfoot. A ring-necked pheasant explodes upward past my face into the air. In America or Europe, this iridescent, elegant bird would be a second-rate sighting, for there the ring-neck is an introduced species, bred and released from game farms. Here in Korea, however, it is a native, a worthy addition to a birder's life list—as well as a joy to behold.

Several Manchurian cranes fly in and lose themselves in tall marsh reeds near the MDL markers. Sergeant Yang now points excitedly toward a pink-frosted white bird that stands alone in a nearby shallow pool.

This is Korea's, and possibly one of the world's, most endangered bird. George is virtually certain that the bird I am watching is the very last of its kind in Korea. He identifies it as a Japanese crested ibis. It is the size of a white leghorn cock, long-legged, with a bright red face, feathery crest, and long decurved bill.

Has the ibis sealed its doom?

This ibis utters a mournful call that is celebrated in a sad song traditionally taught to Korean children. Within adults' memory, the bird was fairly common in winter, in Korea as well as in China and Japan. But it reportedly is very stupid and unsuspecting of people, and so fell easy prey to gunners; pesticides, too, may be part of its problem. The result is that besides the bird I am watching, only a dozen or so of these ibises are known to survive. As of August, four were known to be in Japan, and another six or seven had been seen in China. Unconfirmed reports indicate some may survive in North Korea.

One of George's last-ditch plans for the species was to capture the Korean ibis, pair it with one of the captives in Japan, then induce them to breed. To effect this rescue, George had spent most of the winter trying to shoo and coax the lonely ibis before me to a nearby pool, in which he had set up papier-mâché decoys. Above these decoys, he had rigged mist nets.

Alas, the one time the live ibis appears to have cooperated with his scheme, the net was frozen, and brittle. The bird tore through the mesh to freedom—perhaps at that instant sealing its species' doom.

The ultimate Korean ibis paraded tantalizingly before us in the marsh. Then the bird took off, crossed the MDL in a wide circle and flew on into North Korea. Unrestrained by the closed human frontier, it winged back toward us, its body and broad wings a harmony of pink, salmon and white plumage. We had a long, elegant, last view as it flapped slowly across a ridgeline toward the pool in which George had waited all winter with his decoys to catch it. It seemed to linger in sight for the longest time—then vanished.

The ibis seems doomed. But the DMZ for the moment sustains promising populations of the white-naped and Manchurian cranes, and uncounted other birds. As we trudged back toward the road, we sighted a flock of two dozen Manchurians, foraging in a small, empty valley. When we were half a mile away, they took off in alarm. They clearly do not like close human companionship—which would be their lot virtually anywhere else in South Korea.

The Koreans are one nation. Despite their hatred for the opposing regimes, they hate the division that keeps them apart, and they hate, too, the armistice and the DMZ that are its embodiment. Each side, in its own way, wants to resolve the conflict.

If they do, what will happen to the birds?

The answer may be foreshadowed by South Korea's practice of creating tourist attractions and other monuments on important battle sites. A resort at Panmunjom would not help the cranes. But it is hard to think of a more fitting and beautiful way to commemorate the millions of Koreans—and tens of thousands of Americans, Chinese and others—who died in the war than to maintain the DMZ, essentially as it is.

Already today, a mere quarter-century later, nature largely has healed the wartime destruction—the land no longer bears witness to the human suffering it has seen. Using the DMZ to preserve the cranes thus may be the only way possible to create a living, self-perpetuating monument that distant generations can see and enjoy—and so honor the dead.

Two of the world's 15 species of crane—Manchurian and white-naped—feed peacefully together in rice paddies near Panmunjom. Ironically, a peace treaty could end the DMZ and the sanctuary it affords.

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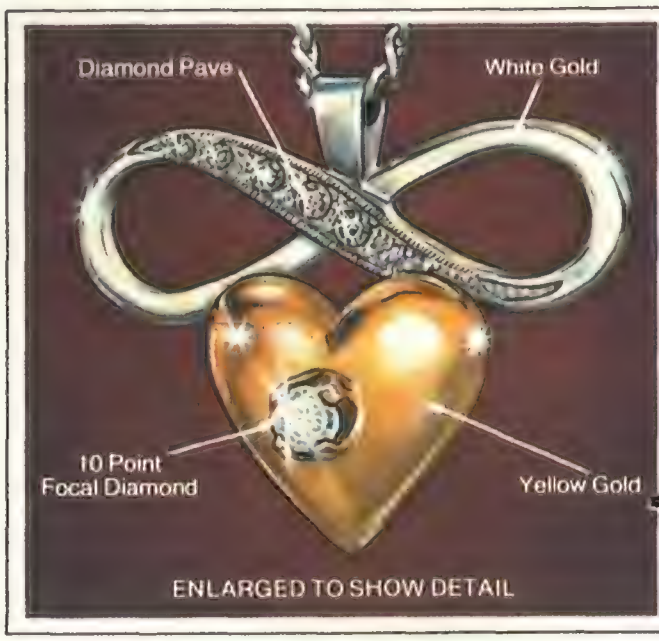

Some things are very difficult to put into words. For some people, certain deep-down feelings cannot be fully expresed with just words — especially the deep-felt sentiments of love.

A gift — to that very special person in your life — can often times convey the sentiments of "everlasting love" — or "infinite love" — or "eternal love" much more profoundly — especially if it is an out-of-the-ordinary gift, and one which is *truly appropriate*.

Here's a way — a beautiful and thoughtful way — that you can express *your* "love eternal" — and your never-ending devotion to that important person. And, at the same time, you will be renewing your infinite commitment to her in a very *dramatic* way — a way which she will never forget.

When you present her with your gift of a "Love Eternal" Pendant, you need not say anything — she'll know for *sure* that your love for her is "everlasting", "infinite" and "eternal".

This exquisite piece of Investment Grade original Jewelry is fashioned from nature's most timeless elements — Gold and Diamond — both of which are traditionally symbolic of love eternal and love enduring.

Our "Love Eternal" Pendant incorporates a heart — (made of Yellow Gold) — the symbol of love — which is locked to the sign ∞ — the symbol of infinity — (made of White Gold) and thereby expresses every aspect of the meaning of the words "Infinity," and "Eternity" as they relate to your feeling of love for her. This configuration — in the form of an exquisite and unique Pendant — certainly expresses the sentiment in a dramatic way that words cannot possibly convey — the whole concept of "Love Eternal."

Whenever she wears this Pendant, she will be reminded of how special she is to you — and the feelings you expressed when you gave it to her. And, after all, what pleases a woman more than the sentiment expressed in a gift made using Gold and Diamonds. The "Love Eternal" Pendant is so unique that wherever she wears it, it will start conversations — and will give her the chance to tell others about your endless devotion and your feelings for her.

RARITY ASSURED — NOT AVAILABLE IN STORES

To assure rarity, the Limited Edition version of these extraordinary Pendants — made of 18 Karat Solid Gold and enhanced with a *Pave* of five small Round-Cut diamonds (approximately 10 points), plus a Round-Cut, 10 Point Focal Diamond — is being restricted to just 2,500 pieces worldwide. They are being issued through our organization, the Limited Editions Collectors Society of America, and are being offered to collectors of fine, handmade Jewelry and to those individuals seeking truly unique pieces of "Collector Jewelry" for gift-giving.

The design (which is protected by a copyright) was created by the J.T. Inman Goldsmith workshops. Perhaps you have already heard about, or seen, some of the other original creations which have been handmade at Inmans. They are a small "Specialty Jewelry" model shop, located in Attleboro, Massachusetts, that has been designing and making unique, fine, handcrafted "Investment Grade" jewelry since 1882, serving clients such as Tiffanys, Cartier, Neiman Marcus, Shreves, Halls, and other fine jewelers for many years.

These extraordinary Pendants were created by Inman's designers exclusively for us, for sale to members of the Collectors Society and to other collectors interested in participating in this Limited Edition offer. They will not be sold through retail jewelry stores or department stores, and the *only* way to obtain them is by responding to the Society's advertisement.

A Registered Edition is also available in 14 Karat Solid Gold or Gold Vermeil (Solid Sterling Silver plated with Gold). However, when the Limited Edition is completed and sold out, all dies and molds will be destroyed, and both Editions will be closed forever.

The Registered Edition can also be purchased, without a focal Diamond — at a much lower cost. In fact, you can own one of these remarkable Pendants for as little as $150.00

1,000 pieces of the Limited Edition have already been allocated to fill the orders which are expected as a result of a private offer being sent to the Society's own membership list. This group now numbers in excess of 13,000 serious collectors, over half of whom have been subscribers to our previous offers of unique "Collector Jewelry."

The remaining 1,500 pieces in the limited issue are being offered to the general public in advertisements such as this one, which are appearing in a number of national publications that will eventually reach over 10 million affluent readers.

We offer you an opportunity to be among the very first collectors who will obtain this new Limited Edition piece. It makes a wonderful gift for anniversaries, plus birthdays and other important "special" occasions. It not only makes a unique, charming, and thoughtful gift, but it is one of the finest, and most *meaningful* that you can ever give when you want to tell someone how much you care and how long you will continue to care — "everlastingly"—"infinitely"— and "eternally" — of course!

AN EXCEPTIONAL VALUE — INDIVIDUALLY HANDCRAFTED

The Pendant is sturdy and solidly constructed; yet it is very comfortable for her to wear. Its sparkling 10 Point Round-Cut Diamond is mounted into a deep, firm Tiffany "setting" to make sure it is secure.

You will be able to tell her that her Pendant has been individually handcrafted, cast by skilled goldsmiths, and then hand assembled and polished with the utmost, meticulous care. Fourteen separate hand operations are required to assemble each and every Pendant prior to the final inspection by the Master Goldsmith.

Each piece in the Limited Edition comes with a lovely fine Link Chain, made of Solid 14 Karat White Gold, 18″ long, which can be adjusted for either formal or casual dress. The lower-priced versions of the "Love Eternal" Pendant, in the Registered Edition, include a similarly styled Link Chain made of Solid Sterling Silver.

Every "Love Eternal" Pendant is an extremely outstanding jewelry value. Many ordinary Pendants — with little to no sentimental meaning — having the same weight content of Gold, cost considerably more. You can verify this by going to any jewelry store to examine the prices of the wide variety of the factory mass-produced, machine-made, pendants that are available. You will find that many of them cost more, and that most cost much more, than our "Love Eternal" Pendant. However, none will have our Pendant's unusual combination of handcraftsmanship, rare beauty, unique design — or its most important feature — its impressive "sentimental" significance.

There is a simple explanation for this outstanding Pendant value. The Limited Editions Collectors Society makes all of its exclusive offerings *directly to the public*. Its products are not distributed through retail stores, catalog houses, mail-order marketing syndicates, who must add "mark-up" to the items they purchase for resale.

Right now is an excellent time to purchase investment Grade Jewelry. The prices of Gold, Silver, and Diamonds are near the lowest they have been for quite some time and many of the "pundits" of tangible assets are predicting that, consequently, precious metals and precious stones have greater potential than ever for appreciation.

Because of the very small quantity of Pendants being offered, if you wish to *"Express Your Infinite Love"* to the most special person in your life, we strongly recommend that you act promptly by mailing us your order using the coupon below, without delay. Or, better still, to be *sure* that your Pendant is reserved for you, *call us at our toll free number* — 800-225-5252 — to place your reservation before mailing your order.

OUR UNPRECEDENTED EXTENDED GUARANTEE

Every Pendant in both the Limited and the Registered Editions is unconditionally guaranteed for one year. We invite you to examine the "Love Eternal" Pendant without any obligation. If you are not completely satisfied, send it back for a full refund — we'll even reimburse you for the return postage.

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After you have presented this stunning Pendant to that special person, if she is not completely satisfied, we'll buy it back. After all, we don't expect Gold, Silver, or Diamonds to lose their value — they never have.

The Collectors Society is a private organization with a membership currently in excess of 13,000 Collectors-Investors. In addition to specializing in the creation and marketing of unique and exclusive, fine Collector Jewelry, the Society also issues authentic reproductions of historic artifacts, exclusive artworks, and officially-authorized commemoratives. It has received a number of important awards for excellence and has been commissioned by a number of non-profit organizations, including the Winston Churchill Foundation, the Freedoms Foundation at Valley Forge, the Old North Church Museum, and the John F. Kennedy Library Fund, to create and market their official commemoratives to collectors.

A personalized Certificate of Authenticity, signed by the Chairman of the Collectors Society's Board of Trustees, showing the serial number assigned to your Pendant (the number recorded with your ownership in the Society's Master Register and microfilm library) will be sent to you within thirty days of delivery. This protects your investment against inferior imitations or counterfeits, and documents your purchase for insurance purposes.

The "LOVE ETERNAL" Pendant is truly a captivating piece of Collector Jewelry and a gift which she is sure to treasure always — one which will assure her and remind her every time she wears it that your love is everlasting and eternal.

We again stress the fact that just 1,500 are being publicly offered. So, to avoid possible disappointment or needless delay, we strongly suggest that you mail your completed order coupon just as quickly as possible before this small Limited Edition is completely sold. There is also another reason for acting promptly. Due to the uncertainty of the Gold and Silver markets, we can only guarantee the prices published in the coupon below for a short period of time.

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Whitney Museum of American Art

By John Canaday

Painters who put the real world into sharp focus

These lens-eyed artists are called the New American Realists—but their roots can be traced all the way back to Colonial times

Good or bad, traditional or innovative, conservative or radical, a flash in the pan or a decisive redirection of 20th-century art, one thing is certain: the most vigorous element in the pluralistic art of the 1970s was a new American realism. Even the critics who had begun the 1970s deploring it could no longer ignore it. The public loved it. So, increasingly, did collectors. By every indication, for better or worse, the 1980s are going to belong to it—unless such a boom is bound to be followed by a bust.

What is less clear is to just what degree the new American realism is still new, or fading; to what degree it was never new at all but only a conservative pendulum reaction against the autocracy of abstract art in the 1950s; and just what is so American about it.

Critics have been more interested in arguments as to whether the movement is an advance or a retreat than in defining its specifically American quality. Its American-ness, in fact, slipped in at first incognito. Any form of realism naturally dictates reference to the world immediately surrounding the artist, and the new American realists perforce found their subjects in American people, places and things—often, as in John Baeder's *Honest John's* (p. 70), with an eye for extremes carrying the kind of social comment that needs no am-

You can feel the temper of the atmosphere in Richard Estes' *Ansonia*, so precise is his city view.

Private collection, England

The only embellishment to John Baeder's *Honest John's* is the spectator's reaction to the precise scene.

plification beyond the enumeration of visual details of an indigenous scene.

Beyond this built-in Americanism, the new realist mode is distinguished within realism's ageless and infinitely varied field by a combination of characteristics that appear in Colonial American art—have in fact persisted with the odds against them during the 19th and early 20th centuries when most American artists were determined to emulate European models. A self-consciously aggressive American quality, conveyed with a variety and richness that have surprised even its organizer, Frank H. Goodyear, declares itself in a current exhibition at the Pennsylvania Academy of the Fine Arts in Philadelphia, "Contemporary American Realism Since 1960." It is the biggest exhibition to date on the subject and will have been the most widely seen when it completes its national and international travel schedule in 1983. (In this country, it will be on view at the Virginia Museum of Fine Arts, Richmond, from February 1 to March 28, 1982; and at the Oakland Museum in California from May 6 to July 25.)

The exhibition's 20-year historical span begins with a group of then-young painters (including William Bailey, Jack Beal, Alfred Leslie and Philip Pearlstein, now in their 50s) who early in the 1960s developed styles forecasting what came to be called the new realism. It concludes with youngsters who are expanding (or shattering) the movement in all directions.

With mutations and hybrids multiplying month by month as new artists join the movement, its unifying characteristics become less and less definable, but the basic one, in spite of all modifications, is the artists' absolute trust in the validity of the visual facts of the world observed and recorded in detail. Romantic exaggeration is taboo; so is classical idealism; anything picturesque is abhorred; the perception of inner truths that lie beneath the artist's fidelity to surfaces is left up to the observer. The second characteristic, cor-

Former art critic for the New York Times, *John Canaday is a frequent contributor to* SMITHSONIAN. *His most recent book is entitled* What is Art?.

Ludwig Collection, Aachen

Subjects in *Hosiery, Handbags, and Shoes* are Don Eddy's way of expressing interest in objects in space.

ollary to this one but not always present, is a readiness to look at the flaws in American society, but without declamatory emphasis. Finally, and most surprisingly in opposition to the conventional idea of Americans as congenitally gregarious people, there is a pervasive sense of loneliness in the new American realism. *Honest John's,* with its explicitly detailed representation of a specifically American scene, its implied satirical comment on that scene, and its paradoxical air of mysterious quiet in a deserted city, exemplifies these three characteristics in the deadpan manner cultivated by a major group of the new realists.

In its early manifestations as a definable movement —"early" in this case meaning hardly more than 15 years ago—the new realism carried with it a sense of combined shock and relief for an American public that for a full generation had been conditioned to believe that realism as a viable creative tenet had died with the 19th century and that any contemporary realists were ipso facto esthetically retarded. The work of the sculptor Duane Hanson and the painter Chuck Close, who now at the ages of 56 and 41 respectively have become patriarchal figures of the movement, may now startle rather than shock the observer, but the fascination of their acutely detailed, undramatized images of people like those we see every day increases with familiarity. Close's gigantic heads, filling canvases as much as nine feet high and looking out at us with the uncommunicative blank expressions of mug shots, are the ultimate examples, to date, of the exploration of reality through encyclopedic enumeration of details. And Hanson's sculptures cast from life (p. 77) have shown that an effigy of an ordinary person can be a more vivid presence than the human being who supplied the mold.

Close's heads are not simply billboard enlargements of photographic images for the sake of attracting by size; the size is necessary as the means of making inescapable, as if under an enormous magnifying glass, details that would be passed by under normal vision. Enlarged pores, individual hairs, small wrinkles, cracks or eruptions become the topographical irregu-

larities of facescapes dominated by the hill of a nose, the fissure of a mouth, the craters of eye sockets holding twin ponds of glistening eyeballs.

Close's nearest relative in the past is a literary one, Jonathan Swift. In his voyage to Brobdingnag, Swift's Gulliver describes the breast of a wet nurse, which "stood prominent six foot, and could not be less than sixteen in circumference," with a hue "so varified with spots, pimples and freckles" that Gulliver was forced to "reflect upon the fair skins of our English ladies, who appear so beautiful to us only because they are of our own size, and their defects not to be seen but through a magnifying glass, where we find by experiment that the smoothest and whitest skins look rough and coarse, and ill coloured." Chuck Close's *Linda* (opposite) is similarly (if a bit more considerately) treated, and carries the same combination of fascination and repulsion that Swift discovered via a new invention, the microscope, and which Close, in turn, has adapted as an esthetic principle of hyperrealism.

It requires a bit of adjustment to recognize the traditional American-ness of Chuck Close and Duane Hanson as the natural descendants of John Singleton Copley, the Boston Colonial portraitist, but the genealogy is there, especially in the case of Hanson. Copley's realism seems mild in comparison with that of his new-realist offspring more than 200 years later, but the difference is one of degree rather than of conception. To understand the extremity of Copley's realism and its American quality, the comparison has to be made in a different direction, between Copley's portraits and those of his European contemporaries.

When Copley painted Mrs. Roland Cotton about 1763, the painters who set the mode in England were Thomas Gainsborough and Sir Joshua Reynolds. Gainsborough, with his light, fresh, sometimes almost impressionistic touch, in contrast with Copley's smooth, glossy, precisely detailed surfaces, modified natural appearances to create images that made his sitters entrancing in both looks and spirit, whatever their true looks and spirit may have been. Reynolds, with his heavier touch, invested his male sitters with

The Pace Gallery, New York

Chuck Close works on his self-portrait on a movie-size canvas, a size he likes to make his point.

San Antonio Museum of Art

Richard Shaffer's *Black Screen* is nine by 16 feet and reflects interest in varieties of visual experience.

majestic bearing and his females with all the most impressive attributes of Venus, Juno and Minerva. Portraiture in France was dominated by a cosmeticized formula set by François Boucher and adopted by the rest of the courts of Europe, relieved by the wonderfully playful, vivacious manner of Fragonard, France's Gainsborough.

Copley, the father of his country's realistic tradition, was himself heir to a native realism, that of the Colonial limners whose uncompromising, unflattering delineation of their sitters' features differs from Copley's Boston portraits only in the degree of skill that, in line with a definition of genius, appeared unaccountably at such a high degree in Copley. The prosperous, practical, matter-of-fact colonials who made Copley a rich man wanted exactly the kind of realism he supplied. Posed in costumes that contradictorily reflect the rococo modes of Europe, they sometimes suggest mannequins from the neck down. The costumes are status symbols, and the details of each flounce, ruffle, lace collar or cuff, the folds of a lady's dress or a gentleman's brocade coat, declare the sitter's position in life.

Is that really such a far cry from the clothing—the actual clothing—in which Duane Hanson attires his sculptures cast from life and painted in natural colors? In a broad way the intention is the same—to establish the position of the subject in a particular segment of American society. The difference within the similarity is that Hanson is interested in a different segment. In the 1960s his subjects were victims (and sometimes perpetrators) of violence. Early in 1970 he turned to satire, with drum majorettes, bunny girls and American tourists (probably his best-known sculpture) among his victims, but since the mid-1970s his subjects are the victims of an American culture that promises everything but gives not enough. Hanson's working men and women are doubly stultified by their daily jobs and their nightly TV sessions. Again and again he shows us what he describes as "the alienation of old age, where everybody looks upon advancing years as an end for the elderly long before it is really all over

Arnold and Milly Glimcher Collection

Chuck Close's portrait, *Linda*, 1975-76, is nine by seven feet, a way of getting close to his subject.

Nancy Hoffmann Gallery, New York

Crystalline, microscopic clarity and a sureness of touch characterize Paul Sarkisian's *Untitled #1*, 1980.

for them." Rembrandt in his portraits of old men and women—including himself—poeticized the tragedy in terms of romantic light and shadow, terms that have become unacceptable as the vocabulary of 20th-century art.

Hanson reproduces a chosen subject, and by astonishing us with his technical mastery, heightens our consciousness without going into explanations. He simply says, "Look." In his absolute faith in the validity of surface detail, in his comment on American society that he leaves us to discern for ourselves, and in his recognition of the loneliness that our society imposes on individuals, Hanson satisfies all three characteristics that are found one, two, or all three at a time in the new realism.

The ancestral line from Copley to the new realists includes two major figures—Thomas Eakins, more and more frequently referred to as America's greatest painter, and Grant Wood, who seldom receives a kind word from critics these days. Eakins stubbornly refused to beautify his sitters at a time—the end of the 19th century and until his death in 1916—when English and French traditions in portraiture had become the demanded norm in America. In spite of their atmospheric quality, some of Eakins' portraits of plain Americans, like the moody and lonely figure of his brother-in-law, Louis N. Kenton, painted in 1900 and usually called *The Thinker* (p. 76), are arresting in their resemblance to Hanson's latest work.

As the realist movement expands into the 1980s, art historians, who are never really comfortable until they have organized their subjects into pigeonholes, are sorting out its nuances under such overlapping headings as photorealism (the movement's original declaration of independence, a self-explanatory term exemplified by *Honest John's*), superrealism, hard-edge realism, hyperrealism, studio realism, neorealism, sharp-focused realism, radical realism, verism and plain old naturalism. When the San Antonio Museum of Art opened its splendid new building this past March with an exhibition of new-realist art—the biggest survey until the current Philadelphia show—it settled for the title "Real, Really Real, Super Real." (This exhibition will be at the Museum of Art, Carnegie Institute, Pittsburgh, from October 24 to January 3, 1982.)

A term that has not turned up so far is "abstract realism," which would recognize that the new realists owe as great a debt to the international abstractionists they have rejected as they do to the American realists whose tradition they continue and expand. Richard Estes, at the age of 45 another patriarchal figure and the dean of a very large school of cityscape painters, recently said, "The abstract quality of reality is far more exciting than most of the abstract painting that I see"—a wonderfully concise statement combining his

rejection of abstract art with a sub rosa acknowledgment of the part it has played in training his eye and in the development of his individual style.

Estes began as photorealist and is still classifiable as a typical one on the basis of his detailed renderings of specific scenes in his early work. In his fully developed style, however, he plays reality against its own reflections in plate glass windows and shiny surfaces, fragmenting the subject and reassembling its parts in ways often remindful of cubism. His *Ansonia* (pp. 68-69), divided down the middle by a grouping of architectural elements and their reflection behind them (a mass of vertical forms treated more like an abstract sculptural composition than a building entrance) plays a city street and its buildings against their reflection in a window where they merge and overlap with placards on that window and bits of the interior. The physical laws that account for this simultaneous vision of conflicting images are soundly observed, but the

Museum of Fine Arts, Boston

Early version, 19th century, of designed realism is John Frederick Peto's *Old Time Letter Rack.*

effect is to shift photorealism into the realm of fantasy. The device is pushed further in what has become a sub-school of photorealism, exemplified by Don Eddy's *Hosiery, Handbags, and Shoes* (p. 71).

For anyone who thinks of art history as a linear sequence running without interruption from one development to the next, and who is eager at the same time to establish the new realism as a stage in this progression rather than a throwback, there is satisfaction in the idea that whereas realism was supposed to have been exhausted long ago, and abstraction seemed to be moribund as an innovative force by 1960, the two supposed incompatibles are harmoniously fused as the logical next stage in the progression of 20th-century art. The abstract/realistic amalgam can take on any number of forms.

In contrast with the complications of Eddy's *Hosiery, Handbags, and Shoes,* there are painters like Richard Shaffer who distill from the chaos of reality an orderly purity (pp. 72-73). Clarified and simplified, but never at the expense of recognizability and logical relationships, Shaffer's interiors have their abstract counterpart in the rectangular compositions of Piet Mondrian, the most severe of abstractionists.

There are also strong redirections toward realism in Europe, particularly in Spain, but they are marked (purists among American realists might say "tainted") by introspective, poetic, sometimes morbid or erotic components quite out of key with the objectivity culti-

Private collection

vated, on the surface at least, as the predominating hallmark in America. Asked to comment on his goals, Paul Sarkisian, an ascendant figure in the movement, refused, saying, "I feel the work speaks for itself." Speaking for itself, then, Sarkisian's *Untitled #1* (pp. 74-75) says that the artist set out to translate into the vocabulary of 20th-century international abstraction one of the most popular aspects of 19th-century American realism—illusionism.

Illusionism of course has been limited neither to America nor to the 19th century, but at that time in this country it was probably practiced more seriously and enjoyed by a wider public (and purchased at higher prices) than at any other time in its history. All the bits and pieces of John Frederick Peto's *Old Time Letter Rack*, dating from 1894 (p. 75), are painted in their true dimensions. There is not a crack in the "wooden" wall or a line of type in the clipping or a frayed thread in the piece of string that was less than amazing in its illusionistic reproduction to a public that was eager to be amazed by a technical feat whether or not it responded to the esthetic pleasure that Peto's balanced shapes and colors also offer.

Sarkisian discards the associative interest inherent in the odds and ends Peto's audience enjoyed examining, and offers first of all the esthetic satisfactions of arrangement, color and textures in a simulated collage. Nothing here is pasted onto the canvas; everything is painted, combining the old tradition of American illusionism, the recent one of collage and, as a bonus, a magical technical trick by which some of the units seem to float unsupported several inches in front of the canvas.

Here we are light-years away from Copley, and are just as close to Braque and Picasso as to Peto, which could raise the question as to just how American the no-longer-quite-new new realism will be within the next few years. There are also painters like Gregory Gillespie who have become stars of the movement but who violate its basic premise, the obligation to repress personal emotionalism beneath a veneer of objective reportage—in Gillespie's case, with a series of dramatically introspective autobiographical self-portraits. But everything considered, the changes and departures from formula that keep appearing in the movement are symptoms of health. As of 1981, the new realism shows no signs of academic ossification.

The Metropolitan Museum of Art

Thomas Eakins' *Portrait of Louis N. Kenton* is an outstanding example of the realist painter's genius.

With polyester resin, fiberglass and oil paint, Duane Hanson, in *Seated Old Man*, creates a vivid presence.

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And now you can bring such golden artistic splendor into *your* home, where you can admire and enjoy it as often as you wish!

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For this exclusive private edition, the Danbury Mint has commissioned the distinguished artist, Mary Mayo, to create twelve original paintings expressly and exclusively for this collection.

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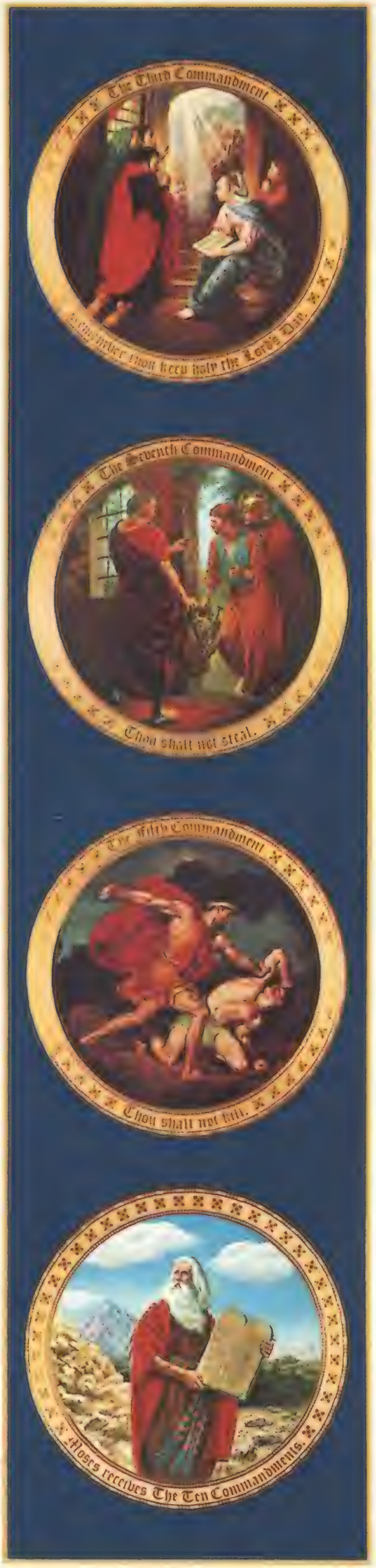
The Third Commandment
Thou shalt not take the Lord's Day.
The Seventh Commandment
Thou shalt not steal.
The Fifth Commandment
Thou shalt not kill.
Moses receives The Ten Commandments.

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By Mark M. Kindley

Subatomic particles attack tumors with fewer ills for healthy tissue

At Los Alamos, physicians and physicists go after cancer with pions. But they have not treated enough patients to know how well it really works

The patients sit in a waiting room in Los Alamos, New Mexico. They have come to where science lives at the Los Alamos National Laboratory to give themselves up to its care. They have come to participate in an experiment to be irradiated with negatively charged pi mesons, called pions, which, they have been told, will cause tiny nuclear explosions in their tumors. Their choices are limited, and this is one option.

For most of the patients at Los Alamos it has happened very fast. The length of time between their diagnosis and arrival in Los Alamos averages about one month. Some find out they have cancer on Wednesday and on Friday they are in Los Alamos, where The Bomb—and everyone knows which bomb—was made.

This is a strange land under any circumstances. Los Alamos sits on the fractured Pajarito plateau which rests like an open hand on the slopes of the Jemez Mountains, its fingers trailing off toward the Sangre de Cristo range to the east. It is a vast and deceivingly gentle landscape, peaceful in its vastness. But the land takes on strange and surreal shapes here. In the evening the horizon is multidimensional and a soft glow of purple and magenta blankets the valley.

The Pueblo Indians around here still dance for rain and cosmic harmonies. There are isolated communities in remote arroyos in the Sangres where one still hears faint echoes of Golden Age Spanish. The Penitentes, a religious sect that practices an indigenous brand of Roman Catholicism, preserves a long-standing Spanish heritage.

Los Alamos itself is an unfinished collage of 20th-century, middle-class America: the Sonic Drive Inn, a modern shopping center and the cantilevered town houses that have reproduced themselves throughout the Southwest. There are also reminders of the days when Los Alamos was a closed city built from the monomania that produced the atomic bomb. Near the center of town is a huge vacant lot surrounded by a chain-link fence and broken concrete walls, a gratuitous scene from the movie *On the Beach* that Los Alamos made possible.

First cancer, and now this. To some the unreality of it all is an anesthesia. There is no time even for the fear to set in. The patients are each given an efficiency buffet apartment in a two-story clapboard building. They've already been processed through tests at the University of New Mexico hospital in Albuquerque. Now at the Los Alamos hospital, a drab pillbox on the edge of a cliff, they are processed and tested some more. The next day a volunteer from the Los Alamos fire department shows up in the parking lot to take them on to the Clinton B. Anderson Meson Physics Facility, named for the late U.S. Senator.

The biomedical facility is at the far end of the proton linear accelerator (p. 83), a concrete portal into the side of a steep hill where cancer has brought them in such a hurry. Inside they wait. All that is strange and alien about the scientific aspect of their treatment is itself strangely reassuring; it's a barrier between them and what their doctors had said was going to happen to them . . . before they were told about this.

Several stories high, this Cockroft-Walton generator starts proton beam toward ultimate target, cancer cells.

Photographs by James Balog

This injection tube kicks the protons produced in generator (p. 80) into the actual accelerator. Electric fields within the evacuated tube in center focus and accelerate beam of protons in the right direction.

The Los Alamos Meson Physics Facility (LAMPF) is a proton accelerator. It is the largest of its kind in the world and operates at a beam current that is greater than the sum total of all other similar linear accelerators combined.

The proton is the nucleus of the hydrogen atom. At LAMPF protons are generated in Cockcroft-Walton generators (p. 80) and injected into an electromagnetic field that draws them on toward an electrical charge opposite their own. By shielding the protons at precise stages, the alternating electric fields in the accelerator push and pull the protons ahead along a half-mile track, finally reaching speeds of 155,000 miles-per-second or about 84 percent of the speed of light. The protons slam into graphite targets where they collide with atoms and break them apart. Some of these atomic parts are negatively charged pi mesons, called pions, and they in turn are captured by electromagnetic fields and diverted to a variety of experiments.

"The pi meson opens a new window on the nucleus and an understanding of its structure, its properties and the forces that govern its behavior," explains Dr. Louis Rosen, the director and patriach of LAMPF. Rosen, known around the shop as Louie, is a gray-haired man with Mr. Magoo eyes who talks as if he were looking through that new window as he speaks.

Rosen's own father died of cancer in 1959. During that year Rosen gave himself a crash course in oncology, the study of cancer, to convince himself that his father was getting the best possible treatment. He also came across a seemingly incongruous observation made by Enrico Fermi, the Nobel Prize-winning physicist legendary for offering up wholly formed pearls of analysis with the abandon with which others exchange pleasantries. Fermi had been shown a photographic plate exposed to the track of a negative pi meson. There was a curved line with what looked like a star at the end. "That's the way to cure cancer," he said and went on about his business. Fermi would later die of cancer himself.

During construction of the accelerator in the late 1960s Rosen recalled Fermi's observation and determined that his accelerator would provide the means of testing that as yet unclaimed vision. He convinced the government to fund a pion project and when the accelerator was completed in 1972, the biomedical facility was an integral part of its design.

That same year Dr. Morton Kligerman had left an

Mark Kindley is a Denver free-lance writer; this is his first appearance in SMITHSONIAN. *James Balog wrote and photographed the avalanche story, December 1980.*

endowed chair at Yale University's School of Medicine to become director of the Cancer Research and Treatment Center at the University of New Mexico and assistant director for radiotherapy and principal investigator of the new pion-radiotherapy project at Los Alamos. At that point, no one actually knew what pions would do if one were to use them to attempt to treat a malignant tumor for any length of time. There were no dose standards and no operator's manual. There was The Beam—as the stream of protons is called at LAMPF—and The Theory.

Pions are the "glue" that holds the major subnuclear particles—neutrons and protons—together in the nucleus. These neutrons and protons pass pions back and forth and the energy of the exchange is the force that binds the nucleus. Pions will travel in matter until they lose energy and slow down. At this point, because they are negatively charged, they are absorbed by the nucleus of other atoms. This excess energy in the nucleus makes it unstable and, in some fraction of a billionth of a second, the nucleus shatters. These are the tiny nuclear explosions that most of the patients have heard about.

Physicists found that a stream of pions (like other charged particles) beamed into a tank of water—which has a density fairly close to that of normal muscle tissue—slowed to the point at which the vast majority formed stars within a relatively narrow range called the Bragg Peak. The Bragg Peak is the "stopping region" where the majority of the pions come to rest and where the major portion of their energy is released.

Breaking the double-stranded DNA

Scientists theorized that if a beam of pions could be manipulated precisely, the pions could be made to pass through hearts and lungs and livers and other organs with relatively little ill effect and then wreak their exquisite havoc in a tumor. In the stopping region where the tumor is located, some of the pions' energy can cause breaks in both strands of the DNA molecule, overcoming the resistance which cells low in oxygen have toward conventional radiation (such cells are frequent in tumors but not in normal tissue). A single break in the DNA molecule can repair itself but when there are two breaks, it generally can't repair—or replicate—itself.

Conventional radiation treatment, with X rays and gamma rays, exposes both healthy tissue and cancerous tissue to radiation damage. Ideally the cancer will be destroyed before the healthy tissue is irreparably damaged, but some tumors are more resistant to radiation than normal tissue, and some, such as pancreatic tumors, are dangerously close to organs that are extremely sensitive to radiation. Pion therapy promised to

The linear accelerator, 3,000 feet long, pushes the protons up to 84 percent of the speed of light.

Subatomic particles explode tumors

A patient with a brain tumor sits under ultraviolet lights while his fiber-glass cast dries.

Technician Rick Guevara wraps fiber glass around the shoulders of another patient. The cast will hold

spare cancer patients the devastation of conventional treatment by concentrating the major part of the pion beam's energy in the tumor area.

Patients accepted for treatment would have large tumors, locally advanced, which had not been effectively treated by conventional methods, and in fact were largely unremovable by surgery in the vast majority of cases. This would exclude patients who had cancers that had metastasized or spread throughout the body.

But first Kligerman and a team of medical doctors, biologists and physicists had to figure out what kind of dose would kill the tumor and not the patient, and how to aim the beam at the tumor within the patient and keep him from wiggling around.

Physicists under the direction of Edward Knapp, who had just come from making the linear accelerator out of good ideas and spare parts from missile silos, set

his head absolutely still for the ten-to-15-minute period that subatomic particles slam into the tumor.

to work designing a delivery system that would get the pions to the patient.

Working closely with Kligerman were Alfred Smith, a biomedical physicist, to determine the dose the patient would receive in his tumor, and Dr. John M. Yuhas, then head of radiobiological research for the pion beam, to determine the biological stress of the pions and the host of other subatomic particles that would come along for the ride: where would they stop? When a pion explodes a nucleus, how far do the secondary particles go? What kinds of new particles are created in the nanoseconds of the explosion?

Because the human body differs from a tank of water in that it is made up of bone, muscle, organs, fat and gas, it was necessary to come up with a method which would compensate for these different densities so that the Bragg Peak would occur inside the tumor.

To ensure that the stopping region of the Bragg Peak would come to rest within the irregularities of the interior contours of the body, a Plexiglas compensator, a bolus (p. 87), was sculpted for each patient. Where the beam would have to pass through bone or some dense object, the bolus was made thin; where it would pass through some less dense region of the anatomy, it was made thick so that the pions passing through both areas would be slowed to the same speed to reach the desired depth within the body. To shield healthy tissue from radiation, a "stencil" called a collimator was made out of a dense metal alloy and molded to the outside dimensions of the tumor.

The bolus and collimator are aligned to the patient's body, overlying the tumor. Then the patient, with these attachments, is moved under the range-shifter portion of the pion machine; the range shifter is a device which contains an oscillating bellows full of oil and causes the stopping region of the pions to be distributed and limited to a deeper or shallower level in the tissue. The precision that is achieved in focusing the beam on the tumor is, of course, wasted if the patient squirms during treatment, which can last anywhere from five to 35 minutes.

A variety of restraint systems were tried, including body casts, which tended to hold their shape better than the patients held theirs, and even treatment tables were designed to receive and fix the patients in their casts in the same position each day. These casts are then removed and hung up like plaster-of-Paris coats between treatments (pp. 88-89).

Custom-tailored technology that cares

As technological advances increase the precision of the apparatus, the possibilities of delivering radiation doses of curative intent has increased, too. In the race against cancer, cancer has all the advantages. The technology has to be made to care about each patient. Cancer doesn't care.

Kligerman left the pion project a year ago to help start a research project at the University of Pennsylvania. Dr. Steven Bush, who had been his assistant for more than a year, assumed Kligerman's positions at Los Alamos and also became chief of radiation therapy at the Univerity of New Mexico's cancer center. Among the patients Bush is known as "the boy genius." He is 31 years old, wears wire-rim glasses with big lenses that he looks over with mock imperiousness. He wears plaid shirts and corduroys most of the time and when he wears a string tie, he manages to make even it look preppie. I asked Bush if pions cured cancer and he leaned back in his chair. His answer would need explaining.

"Sometimes," he said. "I can show you patients who should be dead and in their graves who are alive and

Subatomic particles explode tumors

doing fine now. We have wheelbarrows full of anecdotal remissions."

But most of the patients do not make it.

By November 1980, some 130 patients had been given pion therapy. Of the 36 patients treated for brain tumors, 14, or 39 percent, were still alive in August 1981. Of the 26 patients treated for head and neck cancer, 16, or 42 percent, saw last spring. Of the 21 patients with prostate cancer, 19, or 90 percent, survived. Sixteen patients were treated for pancreatic tumors and five, or 31 percent, survived. Of the 19 patients treated with other kinds of cancer, including lung, rectal and cervical, ten, or 53 percent, had made it through the summer.

Next to the column where he had listed the preliminary results of pion treatment on a chalk board, Bush filled in the expected survival figures for the different kinds of cancer that are treated at Los Alamos. Preliminary results for pion treatment are favorable in comparison to conventional treatment, but certainly not a panacea. When I played the tape of our interview over later that day, the sound of the chalk tapping against the board punctuated Bush's notes with stark finality.

"Patients with these types of brain tumors might be expected to have a long-term survivorship of five percent or less. Pancreas cancer, that's bad cancer, two percent or less. Lung cancer, that's 100,000 people a year, five to seven percent. Inoperable rectal cancer, about 15 percent. Advanced head and neck, approximately 15 to 25 percent. Advanced cervix, 30 percent."

Before any treatment can achieve official recognition, it must pass a random trial. The random trial requires that a group of patients with a specific illness be given conventional treatment at the same time another group with similar conditions is given the experimental treatment.

The random trial presents a very awkward problem to a doctor who would recommend pion treatment to a patient. First he has to tell the patient of the limited possibility of cure for someone with his advanced disease. Then he has to convince him that the pion treatment is at least worth trying. He has to get the patient to believe in his judgment. And then he has to tell the patient that, should he volunteer for the experiment, the treatment he will receive will be determined quite literally by the flip of a card at the Radiation Therapy Oncology Group headquarters in Philadelphia. "Patient number 14, OK. He gets X rays."

Cancer is a mysterious illness. It often strikes for no apparent reason and sometimes retreats for no apparent reason. The folk history of cancer is rife with miraculous cures brought about by everything from almond pits to "nice thoughts." It is the mysterious aspect of cancer that makes it easier to believe in miracle cures and harder to establish so-called orthodox treatments. The overriding objective of an experimental treatment is to determine how many patients may benefit from it although all patients will not be cured.

Clinical experiments like Los Alamos' are a necessity

The priorities of scientific method are often difficult to comprehend and accept. But to improve the cure rate for cancer, clinical investigative programs such as the one at Los Alamos are a necessity. Early experimental treatments are offered to patients who have exhausted conventional treatments or to patients for whom those treatments hold little hope. Without clinical trials not only would the patient lose a possible avenue of hope, but also lost would be the knowledge that might have helped all the other patients to follow. The humanity in scientific method can be just very impersonal.

Because the pion project is an experiment, ethically it can only accept patients who have a relatively poor chance of survival with conventional treatment. Volunteering for the program gives many of the patients a sense of purpose that the diagnosis of cancer had taken away from them.

A sort of war-zone camaraderie develops between the patients and the staff at Los Alamos. Here the patients are in a strange world. Many have been told they have only months to live and they're spending two of them in a waiting room, waiting to be studied. Los Alamos is not the place for a fling, last or otherwise. And yet many of the patients said they found it a little hard to go back to their families and friends.

Many have found that the diagnosis of cancer makes their friends and families uncomfortable. They don't know how to act or not to act, or what to say or not to say. The cancer comes between them and there is a

Different thicknesses of Plexiglas directly above a patient's head (the "bolus") slow down the pions by different amounts, depending on how much bone they must pass through. All reach tumor at same speed.

tendency to want to get goodbyes over prematurely. Among the patients and the staff at Los Alamos, cancer is what they all have in common. Talking about it tends to bring them closer together.

The pion project is currently caught in a classic Catch-22 situation. To stand a chance of getting through a random trial, it is necessary to treat more patients than the biomedical facility at Los Alamos can handle. (There are now only three other places in the world where pion-therapy research is being conducted: in Canada, Switzerland and the Soviet Union.) Because of the amount of money budgeted annually for the project, the Los Alamos accelerator is able to run only 28 weeks a year, and that duration is shrinking. Only about 20 patients can be accommodated at the facility during each treatment cycle, which lasts for about eight weeks; operating at peak capacity that means, maximally, only about 75 patients a year.

Over the last five years the National Cancer Institute has funded a program at Los Alamos to design a miniature accelerator that could be set up in regional hospitals around the country. Scavenging parts and making up technology where none existed before, a group of scientists led by Ed Knapp and including Donald Swenson and Jim Stovall have designed an accelerator that will produce a proton beam with an energy of 650 million electron volts, and which can fit into a tunnel 130 meters long under a parking lot. It will produce negative pi mesons for cancer treatment cheaper than the Los Alamos accelerator.

All the components for the pion generator for medical irradiations, called PIGMI for short, have been successfully developed and tested. There is no doubt that the PIGMI could make it possible to treat large numbers of cancer patients, complete the random trials and quite possibly save tens of thousands of lives each year. (A shortened version of the PIGMI would be ideally suited for the production of radioisotopes used primarily in nuclear medicine to identify diseases—specifically Iodine 123, which has a very short half-life and gives a relatively small radiation dose to the patient.) But the price tag on the PIGMI is on the order of $20 million, and climbing; no funds have been earmarked in the immediate future for the construction of a pion-treatment facility in the United States.

In the meantime, 800,000 people a year find out they have cancer and about 100,000 of them have cancer that cannot be well managed by conventional treatments. That the PIGMI should be held accountable in the marketplace as if it were a better mousetrap seems a cruel condition. It may not be possible to put a price on a life, but there is a price on lives by the thousands.

At universities and hospitals throughout the nation, researchers are experimenting with radiation treatments with heavy ions, studying proton radiation and testing the use of neutron-beam therapy against conventional radiotherapy. Chemists are developing drugs that can protect healthy tissue from radiation. Radioactive elements are being attached to antibodies

Regalia for a deadly battle, fiber-glass casts wait for patients' next sessions of pion irradiation.

to seek out cancerous tissue, depositing their destructive energy on those diseased cells.

Many of these experimental projects show promise, but while they are experimental, they must compete with one another for funds. One of them may be able to cure more thousands of people than another. Assuming there remains a fixed amount of money available for cancer research, giving more money to any one project takes money away from another.

Science may be gaining, but cancer is still winning, one life at a time. It is a very personal thing. Talking with a patient and his wife who were leaving for home, I asked them if they now felt they had done everything they could. The wife answered: "The doubt that maybe there was something more we could have done could haunt you forever. That's why it's so great to be here. I'll never have that doubt. Nor will his girls, nor his granddaughter, nor he. We're lucky."

This Peugeot 505 S is travelling at 80 miles an hour in the silence of the Sahara Desert. A computer is "listening" to noises that you should not be permitted to hear.

From Europe's second-largest carmaker comes the Peugeot 505 S, seen here undergoing silence tests in the soundproof chamber.

A silver car sits in a strange golden room. The engine of the car is humming, the rear wheels are spinning on rollers at 80 miles an hour, and something feels very, very wrong.

The room should be awash with sound. Instead, it is uncannily quiet. The walls and ceiling are receiving the sound waves... and swallowing them.

In pursuit of a quiet car

This is the anechoic chamber at Peugeot, a sonic-test room that replicates the almost deathly hush of the empty desert.

The room is tremor proof. Its door is five and a half feet thick. Golden dihedrons of glass-fiber panels smother up to 99 percent of the sound waves so that they cannot ricochet back and disturb the probing microphones at work.

Connected to these microphones is a computer. It is "listening" for noises that should not exist. If there is a panel vibration, or a buzzing from the dashboard or transmission, the computer will pinpoint the noise.

Peugeot has little tolerance for cars with mysterious rattles and squeaks.

Listen with your eyes

A word of caution: Do not be fooled by the quietness of a car. Quietness, by itself, is no guarantee of first-rate construction.

Trust your eyes—and an alert brain—before you trust your ears. Open the door of a Peugeot 505 S and peer at the hinges. They are machined from hot-rolled steel. Peugeot believes that its owners will not abide doors that sag later in life.

The Peugeot Lion

The lion has represented Peugeot since 1858. It was Peugeot that built the first car ever sold commercially (1891)... the world's first diesel-powered car (1922)... and the first high-rpm diesel engine (1967).

Notice how smoothly the seats move back and forth. The reason: they glide on tiny rollers instead of simple metal slides.

The body is welded in 3,932 places, then treated with 21 anti-corrosion measures. One of these measures involves dipping the body in an electrically charged bath that attracts the primer to the metal like a magnet. Hydrogen is used so there are no tiny bubbles of oxygen that can breed rust.

The meaning of "S"

Peugeot does not believe in nibbling you to death with extra-cost options. When you spend $13,520* for a gasoline-engined 505 S, this is the "S" (for Special) equipment that comes with the car:

- Factory-installed air conditioning
- Electric sunroof
- Cruise control
- Electric windows
- Digital AM/FM stereo radio with Seek/Scan tuning and four speakers
- Automatic electric antenna
- Central door-locking system—a twist of the key locks all four doors
- Alloy wheels
- Multi-adjustable driver's seat.

So fully equipped is the car that the only other ways to spend your money are by ordering a 3-speed automatic transmission ($360) in place of the 5-speed overdrive manual gearbox, and by specifying metallic paint ($290).

New York is noted for its punishingly rough streets. Cabdrivers are switching in droves to Peugeot 505 diesels, despite their higher cost.

An aversion to silly doodads

The Peugeot 505 S is how much car you should expect for $14,000 today. It positively bristles with *useful* equipment rather than gee-whiz gimmickry.

The engine is fitted with silver-tipped spark plugs. And magnetic-pulse ignition. And precisely metered fuel injection. It is designed to shrug off tune-ups for 30,000 miles.

The brakes are disc brakes–*on all four wheels*–because discs shed water and dissipate heat faster than drum brakes.

The shock absorbers contain pistons with four times as many valves as normal shock absorbers. These awesome dampening devices have the almost eerie ability to reduce bumps in the road to little more than ripples.

A rare and expensive test

Most cars are *presumed* to be in proper working order when they roll off the assembly line. This is not Peugeot's way; it takes nothing for granted.

Every single Peugeot is put through a road test on a special track before it is permitted to leave Europe for the U.S. One of Peugeot's 75-member team of test drivers will personally drive the car.

The driver will test the steering, brakes, lights, engine performance, transmission, and suspension. Listen for rattles and vibrations. Check the instruments and controls. Try the heating and air-conditioning systems.

A rarity today, this final road testing costs a small fortune. Peugeot considers it indispensable in maintaining a high level of quality.

Peugeot has little tolerance for poorly made cars.

See your dealer for details of Peugeot's limited warranties.

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For name of nearest Peugeot dealer, call **1-800-447-2882** toll free in the continental U.S. In Illinois, 1-800-322-4400.

Please send me the Peugeot Facts Kit, complete with brochures, road tests by leading car magazines, plus list of my nearest dealers.

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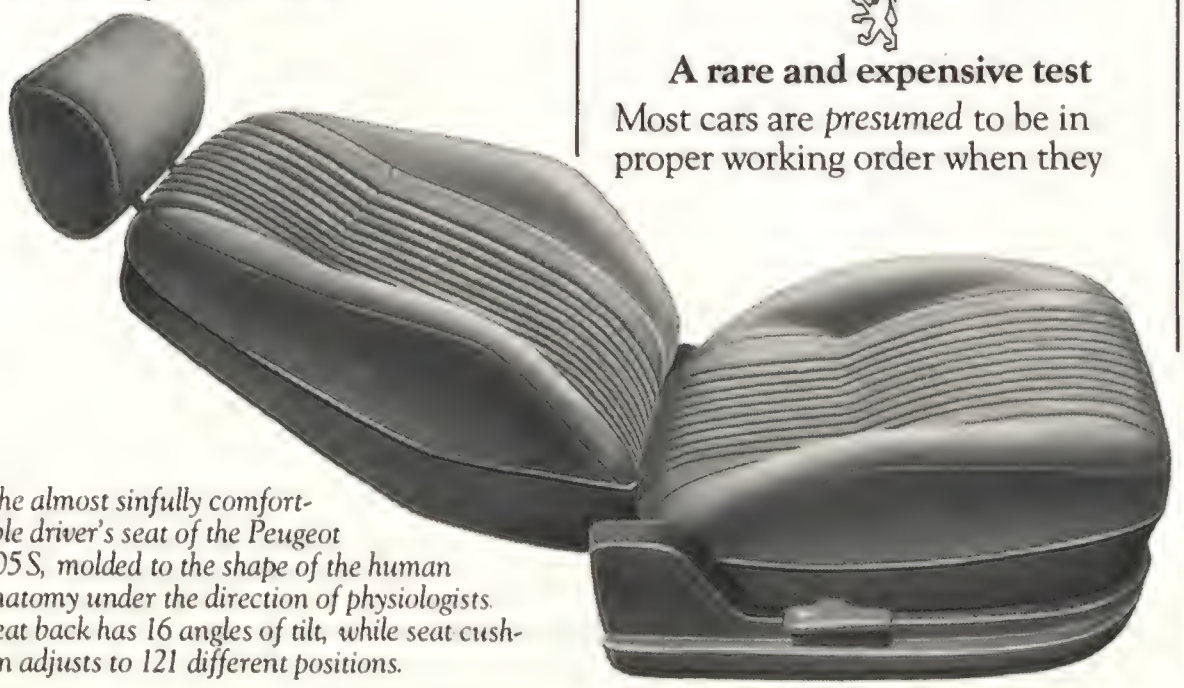

The almost sinfully comfortable driver's seat of the Peugeot 505 S, molded to the shape of the human anatomy under the direction of physiologists. Seat back has 16 angles of tilt, while seat cushion adjusts to 121 different positions.

PEUGEOT

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By Edwards Park

Yorktown triumph set Americans toward nationhood

French and Americans cooperated on land and on sea, played their luck, hit fast and hard—and trapped Lord Cornwallis

Sensing history afoot, onlookers flock to see the bright pageantry of British surrender.

It was the silence that brought out the people. For some three weeks the cannon had been at it, first grumbling sporadically, then roaring, bellowing, day and night, then again becoming sporadic, the mortar shells thumping with concussions that a person could feel in his bones.

Two days ago the racket stopped. And the stillness then kept people awake and brought them out to call upon one another and learn what was happening.

Incredible news! The finest British force to fight in the American Revolution was surrendering to General Washington! On this very day, October 19, 1781, the redcoats and the Germans would march out of the small Virginia tobacco port called York, pass between the lines of French and American soldiers and lay down their arms in a sunny field. It would be a sight to remember all one's life, a thing to tell to one's children and grandchildren so that a century, two centuries hence this day would not be forgotten.

So the people came to watch beside the Hampton road, hurrying along in wagons and carriages, but mostly on foot, for horses were at a premium. The day was cool and bright, and though the guns were now stilled, drums rattled as allied troops came out to take up positions beside the road. French regiments swung past—the Bourbonnais, the Royal Deux-Ponts, the Soissonnais, the Saintonge and others, each with its own colored cuffs and facings on the white uniforms. The men looked fit and tanned, the officers resplendent.

Across the road, the Americans lined up. The Virginia militia were familiar hometown folks to the onlookers, but the Continentals were as strange as the French—ragged men with only scraps of uniform, but so lean and hard, standing so straight, handling their gleaming weapons with such assurance.

Orders rang out. The troops stood quietly along the road. Mounted officers murmured among themselves, their horses pawing the ground. Admiral de Barras of the French navy, unaccustomed to the saddle, felt his mount stretch out its hind legs, lower itself and make

Illustrations by Arthur Shilstone

water. "Mon Dieu," he cried, "I believe my horse is sinking!" Laughter relieved the tension.

A French band played and then a different drumbeat came faintly from the town, and a scarlet and white column, interspersed with Germans in blue, appeared in the distance, marching slowly.

The sorrowful parade of those British and German troops that October day had begun more than a year before, deep in the Carolinas. Many of them had taken part in the siege of Charleston, when the rebels had been forced to surrender their whole Southern army. It had seemed impossible that the Revolution could last after that, and Lt. General Charles Cornwallis, sixth Earl of Eyre, the best combat commander to wear the king's scarlet, led his troops on a blistering campaign to split up these Southern Colonies.

At Camden, South Carolina, Cornwallis took his men to a smashing victory over the best Continental regiments that Washington had been able to spare from the North. But there were straws in the wind.

Yorktown—Revolution's final triumph

Two of Cornwallis' detached forces were beaten badly, one at King's Mountain, one at Cowpens. But more notably, even though the British won almost every other battle against the Americans, they could never stamp them out. Cornwallis could seize some landmark from them—a stream or height of land or clearing—and always,wraithlike, they reappeared out of the forest to contest the next small piece of real estate. Their commander was the best that Washington could supply, Nathaniel Greene of Rhode Island. "We fight, get beat, rise, and fight again," he wrote. And that was precisely the right strategy for the Americans: never mind the real estate, but keep the army intact.

Cornwallis was stubborn and resourceful. He cut swaths through the Carolinas. He cared deeply for the welfare of his troops and suffered alongside them. They were devoted to him, and in his service in this inhospitable semitropical forest land, they grew flat-bellied and tough as whipcord, redcoats and German mercenaries turning into perhaps the finest troops Britain ever fielded. They learned to move fast and quietly, to strike hard and fade away. They fought, in short, like their American foes.

At Guilford Courthouse in North Carolina, in March 1781, Greene came within inches of beating them soundly. As the fighting turned into a hand-to-hand melee, Cornwallis did the one thing he could do to stop the Americans. He wheeled his field cannon into position and fired into the throng, hitting as many of his own men as of the rebels. Greene pulled off and left the British with a pyrrhic victory.

Cornwallis withdrew to Wilmington, North Carolina, where he left his wounded and refitted his troops.

Before starting his "Around the Mall" column, Edwards Park wrote a historical series called "Prelude to Revolution."

He then turned north, to meet with reinforcements.

George Washington, the aloof, reserved Commander in Chief of the Americans, believed in staying close to Sir Henry Clinton, his British counterpart, in New York. He dispatched one of his favorite officers, the Marquis de Lafayette, to Virginia to play tag with Cornwallis. The Frenchman was young and inexperienced, but had proved himself bright and capable.

Washington's French counterpart, the Count de Rochambeau, began to see possibilities in a Southern march to clean up Cornwallis. When he learned that his countryman, Admiral de Grasse, had set sail for the Chesapeake, the nebulous idea became fixed. Washington instantly agreed. The French troops left Rhode Island (SMITHSONIAN, May 1977) and joined the Americans near New York for the march South.

French and American soldiers regarded each other with wary respect. Their commanders got along well. The story is told that while on the outskirts of New York, Washington and Rochambeau went to scout a point of land in the East River. It was a warm spring day, and the two heroes succumbed to it, falling asleep as they rested under a tree. They had forgotten about the tide. It marooned them a stone's throw from enemy pickets, and their aides had to rescue them.

A victory in the Chesapeake

Moving south, Rochambeau reached Chester, Pennsylvania, and was met by Washington, who had gone on ahead. Washington was always impatient, and pressed his horses forward at such a pace that his staff seemed ever to eat dust.

But this time the restless, austere Virginian greeted Rochambeau with astonishing enthusiasm, swinging his hat in circles, whooping with joy. He had learned that de Grasse had reached the Chesapeake and he was bursting to share his elation with Rochambeau.

Then further great news arrived: the French admiral had met the British fleet and driven it away. The allies hurried on to Virginia, and there Washington at last met de Grasse in person. He proved to be a massive and unpredictable Frenchman, and they say that when he was introduced to the towering, six-foot-three Washington he threw his arms around the American, kissed him on both cheeks and cried out *"Mon petit Général!"* to the delight of the staff officers.

Cornwallis, meanwhile, realized that he was in trouble. He had chosen York as his base because it had deep water for the British warships that were to relieve him. But now the fleet had turned back north. He sent messages to Clinton by whaleboat (a vessel that could creep past the French fleet) and got unsatisfactory replies. Where are my supplies and reinforcements, he would ask. Coming soon, Clinton would respond—

Led by Alexander Hamilton, American Light Infantry storm British redoubt. French attack another (right).

but none would arrive. What are my orders? And Clinton, who resented the free hand Cornwallis was playing, would reply with confusion and contradiction.

Washington and Rochambeau, with their troops, reached Williamsburg in September, about a month after Cornwallis had moved into Yorktown. Some of the French were billeted at the College of William and Mary. The French war chest—a mass of coins which armies used to carry along to pay expenses—was brought ashore by de Grasse's sailors, stashed in a Williamsburg house and was so heavy that it collapsed the floor and ended up in the basement, the surprised guard sliding down a fractured beam beside it.

On September 28, the combined armies marched the dozen miles to Yorktown and laid siege. There were about 16,000 of them. By that time, fever and dysentery had laid low a number of British and Germans, so Lord Cornwallis was outnumbered by almost four to one. A violent storm had disrupted Clinton's ships and forced postponement.

The British were fortifying Yorktown and had set up a strongpoint across the York at Gloucester Point. Over there was the dashing Banastre Tarleton, Britain's most colorful officer. He had recruited his British Legion mostly from Loyalist Americans, and they gained the reputation of butchers, quick to massacre when they won, which was often. Tarleton seemed to enjoy these excesses.

Facing Tarleton was one of the flowers of French nobility, the Duc de Lauzun, former lover of Marie Antoinette. He, too, had raised a legion, mostly of Poles and Germans, but they had roistered their way through the taprooms of New England until this campaign offered the cherished chance for glory. At Yorktown, he and Tarleton seemed destined to face each other—"to shake hands," as Tarleton had put it, not

Cornwallis' plan to escape across the river falls prey to a squall which swamps boats, ends hope.

needing to add that their hands would carry sabers.

The meeting came early in October, when Lauzun had been ordered to take his legion across the river and support the Virginia militia that hemmed in Tarleton. As the Americans were moving their lines closer to the British they met a foraging party guarded by the British Legion, led by Tarleton himself. Lauzun, on the field with his cavalry, instantly charged, and Tarleton spotted him and rode for him. Before the personal duel could be settled, a plunging horse hit Tarleton's steed and unseated him. When Lauzun pressed in, Tarleton's green-jacketed Loyalist legionaries surrounded him and the moment passed.

At Yorktown, the siege progressed according to the book. Proper procedure called for parallel trenches to be dug, successively closer to the enemy. Artillery would then move into position and open a bombardment that would presumably plaster the enemy into submission. On October 9 the first parallel had enough batteries in position to open fire. Washington is reported to have touched off the first American gun, and he may well have done so, for he liked to wander among the troops unrecognized in his cloak.

At any rate, one of the first American shots slammed into the house where the British Commissary General was dining with some Scottish officers, killing him and wounding others.

Governor Thomas Nelson, commander of the Virginia militia, is said to have pointed out a tall house in the town and told Lafayette to get his guns trained on that—just the sort of place the British would use for headquarters after their original headquarters (his uncle's house) had been damaged by artillery. How did he know? "It is mine," he answered. Soon it was torn by the 24-pounders. True or not, it's a fine story.

American gunnery was good, for huge General Henry Knox, the Boston bookseller, had seen that his men were trained well. But French accuracy was marvelous because their powder was better and their guns new. They blasted targets at will, including the vessels that Cornwallis had used to reach the port. British gunfire was more sporadic, probably for fear of running out of ammunition, but mortar shells did plunge into the trenches and explode with earthshaking force. One lobbed in beside General Knox and Lt. Col. Alexander Hamilton, a brusque, bright, annoying youth. As the fuse stick sputtered, Knox jumped for cover and found Hamilton scrabbling under him for protection. "Let me tell you not to make a breastwork of me again!" roared Knox, outraged.

On October 14, the second parallel had been dug except for an area of open country that was under the guns of the two most extended British redoubts—Number Nine and Number Ten. These had to be taken. The French were assigned to attack Number Nine that night; Lafayette's American light infantry—"light" only in that they were men picked to move fast and strike hard—were to storm Redoubt Number Ten.

Alexander Hamilton, possessed of a well-developed political instinct considering his tender years, begged Lafayette to be put in command of the American assault. He knew that a dash of valor could never hurt his career. Lafayette referred the matter to Washington. The Commander in Chief had recently suffered through an altercation with Hamilton, who fancied himself slighted over some matter, but Washington was far too big a man to remain biased against him. Sighing wearily at the fires of youth, he agreed. Hamilton could go ahead and make a hero of himself.

The redoubts fall

With fixed bayonets and unloaded muskets, the light infantry slipped through their support trenches that night, then surged forward toward the sharpened logs that jutted like a crown of thorns from the redoubt. Without waiting for the ax-swinging pioneer group to chop away the logs, the soldiers squeezed between them in gaps torn by artillery.

Hamilton tried to lead, but he was as small as he was feisty, and in the dark he was pulled backward and trodden upon by his eager troops, until, sputtering, he managed to climb over the top on the broad back of one of his men. British muskets blazed, but the Americans overwhelmed resistance. Hamilton was right in the van, breathing fire like the oldest warhorse and proving himself to be an honest hero.

The siege line was quickly completed and the allied guns now roared at almost point-blank range. Men kept their heads down except when one of the British dogs—used to help out in guard duty—leaped out of the earthworks to chase a spent cannonball, and men on both sides poked their heads up to cheer it on.

The allies expected an immediate counterattack on the redoubts. But instead, the British mounted a night attack a day later. Troops crept forward. When challenged by French sentries, they pretended to be American. When halted by Americans, they answered in French. Then with a shout from an officer: "Push on, my brave boys, and skin the bastards!" they sprang over the revetments, sent the sleepy guards flying and spiked the guns by jamming bayonets into the touchholes and snapping the points off. But a nearby French contingent counterattacked, driving the British out. And the guns were quickly reamed out.

On the evening of October 16, Cornwallis assembled boats and set about getting his men across the river to Gloucester Point. If he could break out of that beachhead, he might work his way north to join Clinton. One crossing was made, taking a Guards regiment. Then a sudden squall exploded over the broad river, whipping the water white, swamping boats and hopelessly tangling the embarkation. Such storms still arise with no warning, churning up the river and endangering fishermen.

Cornwallis rescued what he could, called back the Guards, and made his lonely decision. So, on the morning of October 17, exactly four years since General John Burgoyne surrendered to the Americans at Saratoga, a redcoated drummer boy appeared on a British earthwork. Ordinarily the drummer would have worn a coat of his regiment's colors with scarlet facings. That this one should have broken precedent is curious, but perhaps fortunate. Lieutenant Ebenezer Denny wrote, "Had we not seen . . . the red coat when he first mounted, he might have beat till doomsday." He beat away until the gunners saw him and, one by one, ceased fire. And in the silence the drum was heard—the call for a parley. A British officer jumped up beside him, waving a white handkerchief. An American officer ran across the torn ground to meet him, to bind his eyes with the handkerchief and lead him back to Washington. And so, eventually, the terms were thrashed out in the Moore House.

The strange stillness was broken next morning by a bagpiper playing a wailing tune, a lament, perhaps. He was answered by a French band. And then the ramparts on both sides were filled with men, standing up in the sun and staring at each other.

England's world turned upside down

Now the head of the British column was level with the allied troops lining the road. The squealing British fifes were playing a number of tunes to keep the men moving for that long, dismal parade. They probably played an old song called by various names including *The World Turned Upside Down*, perhaps not realizing the irony of that particular title.

Among the legends of the surrender is one that describes how, as the redcoats passed between the allies, they swung their eyes toward the French. Feeling that the Americans were being snubbed, Lafayette is supposed to have gestured toward his musicians, who opened into a squeal and thump of their own, startling the British into an involuntary "Eyes Left!"

Cornwallis was not present. The humiliation was too much for him, and he may well have been sick (as he claimed) with the illnesses that had laid so many of his men low.

Taking the Earl's place was his second-in-command, handsome Charles O'Hara. He moved uncertainly toward Rochambeau. The Count gestured toward Washington, tall and impassive, sitting his horse as though born in the saddle. O'Hara offered his sword, and Washington is supposed to have said "Never from so brave a hand." A nice phrase, but just the sort of words put in the mouths of heroes long after the event.

Washington, a stickler for protocol, would not take the surrender from a second-in-command, so he passed O'Hara along to *his* deputy, Benjamin Lincoln. Lincoln had commanded at Charleston and had been forced to accept humiliating terms when he surrendered. This was a sort of recompense. He accepted the sword and then, with the usual chivalry of such moments, returned it.

Marching on to Surrender Field, the beaten soldiers now had to set their muskets on the ground, company by company, on the commands of their officers. French cavalry, resplendent in uniforms right out of a European painting, shifted in their saddles and watched.

"Ground firelocks!" and the ranks would step forward and lay them on the grass. The men looked resplendent in freshly issued uniforms instead of the stained and faded regimentals they had lived in for so long. But many were weeping, cursing, hiding their faces behind their hats. Many were drunk, since their officers had opened the rum stores for them. Some soldiers embraced their muskets before laying them down. Others flung them, hoping to damage them.

The blue-coated Germans behaved better and marched better, the Americans decided. Mercenary or not, these German troops had fought their hearts out, and now tears coursed down some moustachioed faces.

By evening the field held tall heaps of weapons and bundles of cased colors. Enlisted men roamed shattered Yorktown; officers fraternized. Civilians headed back to their farms and plantations, minds whirling

with what they had seen—so much exotic nobility! So many strange nationalities and languages. Among the French officers was a Swedish nobleman. Lafayette's brother-in-law, the Count de Noailles, was there.

Counts, Chevaliers, Barons . . . including Washington's crusty Prussian drillmaster, Baron von Steuben. The Deux-Ponts regiment came from the Saar Valley and spoke German. So did many Continentals among the Pennsylvania regiments of Mad Anthony Wayne. The Americans also fielded a Canadian regiment.

Across the river, Tarleton surrendered before his old foe, Lauzun. Later he would have an affair with the toast of London's stage, a Mrs. Robinson. As it happened, she had cherished Lauzun as one of her lovers.

Prisoners of war were sent to western Virginia and Maryland. Many became citizens of the new nation. Washington hurried to the deathbed of his stepson, the charming, spoiled, profligate Jacky Custis. De Grasse took his fleet to the West Indies. Eventually he met the British again, was beaten and returned to France in disgrace. Rochambeau's men encamped near Yorktown for the winter. Cornwallis was exchanged and went home. He was sent to India as commander in chief and did splendidly. He always blamed the Yorktown disaster on Clinton. Sir Henry did manage to get a fleet off to Yorktown, but it was greeted with the news of the surrender and turned back. The guns and drums were quiet along the York, and again people could hear the arguing of the geese as they rose in skeins at sunset.

Yorktown was the last real battle of the American Revolution, though the war dribbled on for two years. There was now no doubt that a new nation would arise to take its place among its friends and former foes. But it was a long process, not to be achieved by a mere statement. People had to feel their nationhood deep in their bones—as they had felt the final thunder of the great guns, 200 years ago.

In the silence of peace, British and American officers survey shattered York and, perhaps, Nelson's house.

The reedstilt stands motionless in the water until a fish swims directly beneath it. Plunging its head into the water, it seizes the fish, straightens its neck and swallows it.

On its thin legs, the reedstilt stands nearly a metre high at the shoulder.

REEDSTILT

Harundopes virgatus

The lower parts of its legs are covered with hair and probably provide camouflage as well as protection.

The pfrit's feet are covered in fine hairs that prevent it from sinking in water.

PFRIT

Aquambulus hirsutus

A page from *After Man* depicts future species of the temperate wetlands. The reedstilt hides among reeds, picks off passing fish; the pfrit, descended from shrews, is a tiny insectivore that can skate on water.

Field guide to the curious fauna of the future

Author Dougal Dixon measures his model of large bipedal bat, a predator in the post-human era.

A zoological fantasy based on Darwinian principles suggests that we humans may be far from the last word in evolution

In this age of endangered species (ranging from aardvark to zebra, it almost seems), what could be more tonic than taking a look at the world's flourishing future wildlife? British author Dougal Dixon, trained in the study of the fossil past, has produced an extraordinary bestiary that is filled right to the margins with fantastic animals of the distant future. Some of the creatures that populate this wonderland can be seen inhabiting the tableaux opposite and on the following pages. But one species notably missing is Man, or anything like him, for Dixon speculates on the course of natural selection after our extinction. His book is titled *After Man*.

Besides his biological whimsies, Dixon's book provides a compendium of current ideas about the nature of evolution, thus making fantastic critters like the two-legged, wingless predator bat (above) seem altogether plausible, as well as fun. Man died out, Dixon reports, because there were not enough natural resources on Earth to support him. Much of the world's wildlife had already vanished by then. Most of the domesticated animals were so dependent on Man that they soon died out, too. In many cases, it was the pests that persisted, and began branching out to repopulate the Earth.

The animals 50 million years after Man show many of the same traits as their predecessors; their shape and behavior are adapted to filling the same ecological niches, although they are descended from different ancestors. Most hooved mammals vanished with Man, for example, but the rabbits survived and evolved into large, hooved rabbucks that resemble deer. In the woods and grasslands, they diversified to become a major group of herbivores, and are kept in check by the rise of predator rats that replaced and resemble the wolves, lions and tigers of the past.

Among the most impressive beasts of the future are the gigantelopes, massive animals which have traded the speed and agility of their antelope ancestors to follow in the footsteps of the extinct elephants. The principal predators of the gigantelopes are descended from the primates that survived after Man: tigerlike horranes whose striped, tawny bodies offer camouflage in the grasslands, and raboons, which have moved from arboreal existence to the ground-dwelling life of scavengers.

If many of the world's future animals seem like replacements of present species, there are some new wrinkles as well. One is the little parashrew, which leaps from the parental nest in the mountains and floats to earth on the wind currents by means of a hairy parachute on the end of its tail. It seems a shame there are no humans to appreciate all this. But, as Dixon points out, it took 50 million years for some of these creatures to evolve; replacing Man may take a little bit longer.

After Man: A Zoology of the Future *by Dougal Dixon, on which this article is based, is being published this month by St. Martin's Press, Inc.*

Illustrations by Diz Wallis and John Butler

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Tusked mole, a burrowing inhabitant of temperate woods, feeds on mice, worms.

TESTADON
Armatechinos impenetrabilis
A descendant of the primitive hedgehog, the testadon has hinged armored plates instead of spines, and can roll up into a ball. The oakleaf toad (foreground) is well camouflaged in leaf litter.

Purrip bat, a nocturnal forest dweller, sports ears like dish antennae.

NIGHT STALKER
Manambulus perhorridus
More than four feet tall, this predatory ground-dwelling bat walks on its long forelegs; clawed hind feet (evolved from ancestral wings) now reach over its shoulders and serve as its hands.

TRUTEAL

Terebradens tubauris

A relative of tree shrews, this forest insectivore is sightless, relying on its highly developed hearing and sensory whiskers. Insect catching "beak" has evolved from its elongated incisors.

ROOTSUCKER

Palatops spp.

Long pointed claws, horny head shield give the desert dwelling rootsucker an edge in digging and shoveling its way about a sandy habitat. Nutlike shell on its back helps it in conserving water.

Parashrew uses parachute tail only once, in long glide down from its nest.

Spitting featherfoot is a desert rodent that uses saliva foam to cool itself.

The lutie is a mouselike forest dweller whose ears betray rabbit ancestry.

Polar ravene (top) is larger than woodland ravene but it has smaller features.

FALANX
Amphimorphodus cynomorphus
Largest of the predator rats, the doglike falanx has gnawing incisors modified with stabbing points for slashing. The two falanx here are attacking a rabbuck, a grazing animal evolved from the rabbits.

WAKKA
Anabracchium struthioforme
Perhaps the most highly adapted running animal in the world, the wakka of the South American grasslands has two long hind legs, a long neck and tail. Its forelimbs have completely disappeared.

GIGANTELOPE
Megalodorcas giganteus
Descended from antelopes, the huge horned herbivore in the foreground is future counterpart of the elephant; its cousin (background) is a rundihorn, which resembles extinct rhinoceros.

Long-armed ziddah is a tree-swinging primate; it sleeps hanging from tail.

ZARANDER
Procerosus elephanasus
A forest vegetarian, the zarander sprang from ancestral pig stock; its snout has evolved into an elephantlike trunk that can reach high leafy branches. Double tusks can work like scissors to snip vines.

Leaping devil, a small desert predator, picks on rodents of its own size.

Tree drummer with chisel teeth and a trunklike snout catches insects under bark.

Flower-faced potoo waits with open mouth to attract the insects it preys on.

GHOLE
Pallidogale nudicollum
Resembling a large mongoose, the ghole is the most efficient scavenger of African grasslands, feeding on skeletons left by larger predators. It gets most of its nutritional needs from bone marrow.

TURMI
Formicederus paladens
A descendant of African forest pigs, the turmi uses its picklike tusks to pry open termite nests. Its mouth is a small toothless hole, with a ribbon tongue for catching termites.

FLOOER
Florifacies mirabila
A sedentary bat, the flooer has brightly colored ears and nose flaps that mimic a species of flower. An insect that mistakes the bat for the flower is snapped up quickly.

CHIRIT
Tendesciurus rufus
A tree dweller with a diet of greens, fruits and nuts, the chirit lacks the jumping ability of its squirrel ancestors; stubby tail and feet anchor its arboreal balancing acts.

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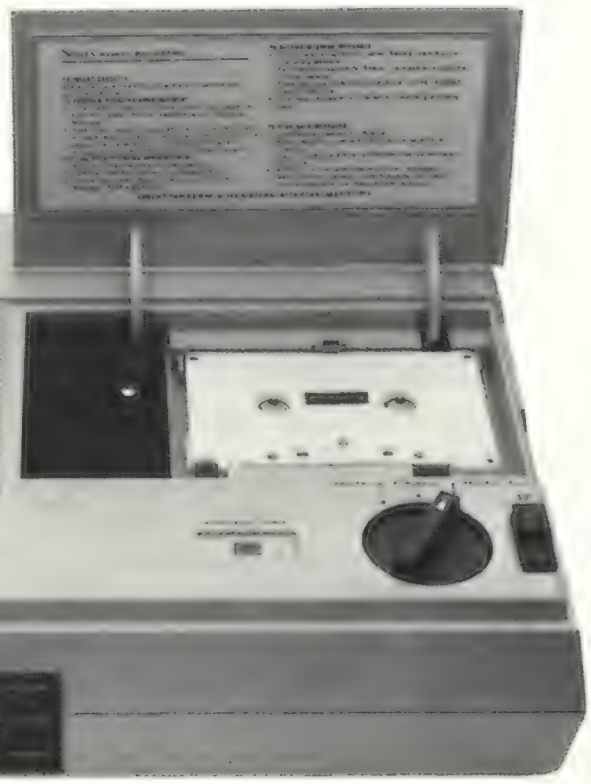

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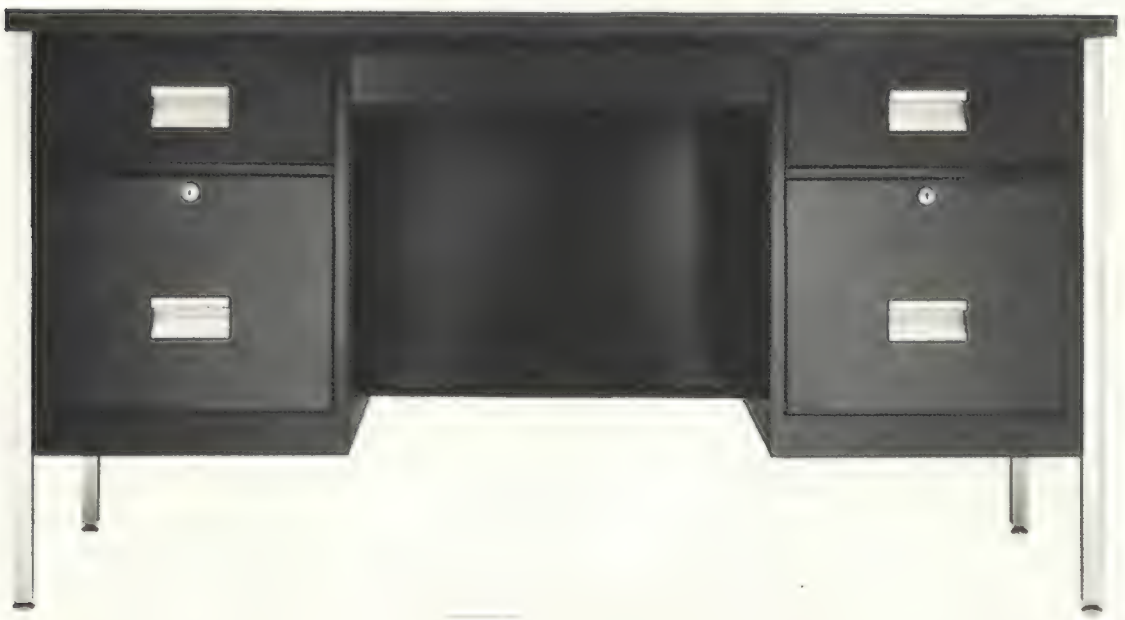

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Courtesy Arthur D. Little, Inc.

By Richard Wolkomir

And now, from the people who brought you the lead balloon . . .

'Hardly anything is none of our business'
is the motto of Arthur D. Little, Inc.,
and this saying is not far from the truth

On the parking lot of the Arthur D. Little, Inc., consulting firm in Cambridge, Massachusetts, a platoon of the company's experts gathered recently. Tethered in the lot around them were several airships, made of lead foil. The consultants had experimented with lead in an effort to get it so fine and thin that its weight would be no problem.

One box-shaped design was too thin-skinned; it ripped and lost its helium with a whoosh. But one of the creations—"a really beautiful elongated design," says one of the men—was so buoyant that a gust of wind uprooted its rope. Instantly the craft (opposite) went aloft, scudding before a land breeze toward Boston harbor, and gaining altitude. When last seen, from Logan Airport, the world's first lead balloon was sailing majestically out over the Atlantic, toward France. Once again, Arthur D. Little, Inc., had proved that doing the impossible requires merely the right experts.

When a telephone rang not long ago at the office, the secretary who answered heard a voice say, "May I speak to Dr. Peter Glaser? This is Robert Redford." She rushed to tell Glaser, an expert on solar energy and space technology. He looked puzzled. "Redford?" he said. "Never heard of him—is he from NASA?"

That evening, when the engineer reported his secretary's mystifying tizzy to his wife and daughter, they bundled him off to a Robert Redford movie. Later, when Redford visited Arthur D. Little to confer on a solar project, Glaser was able to discuss *Butch Cassidy and the Sundance Kid* as well as photons.

"I was too parochial, too focused," Glaser muses.

Everyone is focused at Arthur D. Little, Inc. (ADL for short), a humming hive of 1,300 experts on everything from automation to zymurgy. But this firm—which serves society as a scout into the technological future—is anything but parochial. Its clients include government agencies, businesses around the world and entire countries. And the 4,000 "cases" that ADL handles each year have a prodigious range:

Setting up a national telecommunications system for Saudi Arabia; improving agriculture for Togo; introducing the chocolate chip cookie to Italy; evaluating, for the U.S. Environmental Protection Agency, the impact of environmental regulations on the copper industry; assessing the health effects of road salt; helping Colombia and Venezuela create a jointly owned sugar company (p. 119); helping an international consortium develop new hospitals for Brazil (p. 118); designing computer-assisted dispatch systems for police departments; identifying the unpleasant flavor in one company's Danish pastries (it came from delivery-truck exhaust fumes); and helping Egypt increase the benefits from tourism at Luxor, while preserving the antiquities.

"We manage change," says the urbane president and chief executive officer, John F. Magee (p. 117). "We help our clients, worldwide, to deal with shifts in society, technology, economics." ADL is big on food, too: Cream of Wheat, Cap'n Crunch and a crumbly imitation bacon have come out of its laboratories—one day maybe automated enchilada shells (p. 115).

Defying gravity, a balloon with a lead-foil skin takes off from company parking lot.

Photographs by Lee Lockwood

In his office, engineer John McCullough examines array of "scroll" devices for pump/compressors.

In a laboratory, energy expert Peter Glaser shows off the model of a solar satellite.

Arthur D. Little was founded in 1886, the first of the big consulting firms, its original headquarters now a National Historic Landmark. It was summoned into existence by technological society's terrible twins: relentless change and bewildering complexity.

Are a manufacturer's machines abruptly obsolete? Does a small country, technologically buffeted, need help reweaving its social fabric? Are executives stymied when standard managerial techniques fizzle? Consultants, the paladins of the Electronic Age, jet to the rescue. Rather than hire staffs of specialists to solve problems that quickly dissolve into new problems requiring different specialists, organizations can turn to rent-an-expert companies. As the ADL motto puts it: "Hardly anything is none of our business."

These corporate Merlins sell wisdom. They can assemble, virtually instantaneously, a posse of precisely the experts needed to solve any complex problem.

For instance, not long ago Saudi Arabia asked ADL to help plan a new industrial city on the Red Sea. The company's lead management committee decided the "case" was appropriate to take on. It appointed as "case leader" a political scientist specializing in city planning. Then the case leader invited the firm's appropriate consultants to join his team: civil and chemical engineers, a pharmacologist, a telecomunications specialist, economists, mathematicians, a marketing specialist and a public-relations expert with a background in the fine arts and theater.

According to President Magee, this odd organizational style—"an Oriental bazaar," one staff member has called it—could become the norm. Increasingly, Magee predicts, organizations will confront complex problems demanding a variety of specialists. Ad-hoc teams may be the answer.

Compared to the typical large corporation Arthur D. Little has virtually no hierarchy. Each consultant is, in a way, an independent entrepreneur, responsible

Richard Wolkomir, who lives in Montpelier, Vermont, wrote about supermarket and diner preservation in the April 1981 SMITHSONIAN.

In a food lab, David Rest (left) and Richard Pride try to automate the making of enchilada shells.

for keeping himself busy. Anyone can turn down an invitation to serve on a team, whether because of time, philosophical opposition, or just because the project looks dull. And, no matter how junior they may be, case leaders can invite anyone in the company, including Magee (an economist and mathematician), to serve under them on their teams.

Recently the vice president for public relations, Alma Triner, was in Cairo, part of a team helping Egypt attract foreign investment. The team's Egyptian liaison, U.S.-trained, was astonished to see that Triner was outranked by the team leader, who held no corporate office: "he just couldn't believe that a vice president was under the direction of a nonofficer."

In fact, newcomers from conventional companies frequently find the freewheeling management style so disconcerting that they "self-select" out. Those who stay often remember their early Cambridge experiences with bemusement.

"On the day I reported for work," says Harland A. Riker, "everyone seemed distracted and not altogether sure what to do with me." That was in 1953. Today he is the company's vice president for Europe, but he still recalls every detail of his odd first day.

Did he know anything about Puerto Rican rum, somebody had asked. Someone else wondered about his background in microeconomics. When he said he was an engineer with experience in power-plant design, his questioner had wandered away. Then someone asked: did he know much about greeting cards?

"By now I was certain that I should have taken the other job offer, selling aluminum storm windows," recalls Riker. He found himself assigned to a back room, where half a dozen consultants were lying on mattresses on the floor. "From time to time, they would change positions or switch mattresses and make notations on clipboards," he says. "No one seemed the least concerned by my presence."

The leader of this supine group seemed impressed with the new man's engineering background. He invited Riker to test an unoccupied mattress. "I demurred on the basis that I was heavily committed to

From the lead-balloon people

the future of the greeting card industry, and quickly returned to the relative sanity of my cubicle with serious doubts that I would ever understand what people at Arthur D. Little really did," says Riker.

Gary A. Marple, a management expert, once was asked by officials interested in burying nuclear wastes to answer this question: where will people live in A.D. 10,000? When he reported that no waste-burial spot was perpetually safe from human contact, they asked him to find out if people might "genetically mutate to tolerate radiation." Marple, who reads poetry for business inspiration, wryly says that mutation was "not a solution that one would plan or hope for."

Less weighty was the "Case of the Tangled Teabag Strings." A major tea company's manager telephoned Marple in desperation when customers began complaining that, in every boxful of the company's tea, the strings on the teabags were annoyingly intertwined. ADL straightened things (and strings) out.

Often cases are staggeringly complex. An example is a recently completed feasibility study for the Toyota company on building an automobile plant in the United States. The ADL team had to look ahead to the year 2000—what cars will drivers want then? What about viable sites? Across-the-Pacific transportation connections? Will Japanese-style management still click in the United States? The final report filled two bound volumes.

Not long ago, U.S. Steel was contemplating a new $4.5-billion plant—one of the largest private-enterprise projects in history. Before proceeding the company needed an environmental-impact study, which usually takes three or four years. But because of the project's size, inflation meant every month's delay was stupendously expensive. Could ADL speed the study along?

A task force of more than 200 experts in many disciplines went to work, assessing the physical and socioeconomic impact of the proposed plant: how would the area's population change? What would the impact be on the schools? Utilities? Traffic? Energy consumption? Police and fire services? Hospitals? Local economics? Taxes? Sewage systems? Within 16 months the report was ready. It filled 13 volumes.

Such complexities still lurked over the horizon in 1886, when young Arthur D. Little opened a chemical laboratory six floors up on Boston's Milk Street, in a building where the elevator usually was on strike. He and his partner had invested $2,500 between them. Their first year's profit was $600, divided two ways.

But Little had a vision: "the price of progress is research," he said over and over in an era when the average businessman considered science no more relevant to the making and selling of goods than Pindar's odes. Little's own romance with science began at age 12, when he watched a friend sizzle a hunk of zinc with sulfuric acid to produce hydrogen. It exploded with a satisfactory "bang." Little rushed home to tell his father, a retired Civil War artillery captain: "I'm going to be a chemist."

Eruptions became routine in the Little household, as young Arthur experimented. One of his early inventions was a beer-bottle hand grenade—he tossed the explosive-filled bottles over a fence and waited expectantly for the boom.

A long list of 'firsts'

Finances forced Little to leave MIT after three years. He took a job with a pulp mill—"part chemist and part clerk"—and six weeks later was the mill superintendent. But, determined to matchmake between business and science, he soon left to open his laboratory. In 1903, the young company wove the country's first commercial textile fiber from cellulose acetate; in 1911 it created for G.M. what was then the first centralized research department; in 1918, the firm carried out—for the Canadian Pacific Railway—what was probably the world's first area-development survey. The company cites a long list of other firsts, from the first antiknock gasoline to the first fiber optic interactive cable-television system.

Like any seer, Arthur Little (opposite) was often correct in general, but sometimes askew on particulars. In 1928, for example, he predicted that new-fangled electric refrigerators would be supplanted soon by gas-fired models. In the 1950s IBM asked the company to assess the market potential of a new office machine developed by another company. The ADL consultants declared that the new invention had "too high" a capacity for the existing market. They advised IBM to turn down the machine—the Xerox copier.

But such goofs are few, far outnumbered by the

At coffee break, ADL president John Magee chats with some foreign students in a management education class. At right, the firm's founder.

successes. And rarely does an assignment leave the consultants stymied.

In 1921, an industrialist assured Arthur Little that even science couldn't "make a silk purse from a sow's ear." Little immediately commanded his chemists to reduce a batch of female pig's ears to gelatin and tissues, from which they produced thread. From the thread they wove red-and-blue purses, one of which is now in the collections of the Smithsonian's National Museum of American History (p. 120).

ADL still is busily converting all sorts of "sow's ears into silk purses." One example is a state of matter called a "critical fluid," familiar to chemists for years, but largely ignored. At certain temperatures and pressures, the "critical" point, fluids have properties of both liquids and gases. In particular they can act as solvents, like liquids, but ten times as efficiently.

In 1974, ADL hired chemical engineer Richard P. De Filippi to identify profitable new chemical processes. In the company's files, he found an MIT professor's memorandum on critical fluids. He recognized their potential, in an era of high-cost energy, for saving manufacturers money by acting as supersolvents. But what, exactly, could critical fluids do?

In a laboratory, De Filippi holds up a slice of uncooked potato. "Deep fry this slice, drain it, salt it and you have a potato chip that is 45 percent oil," he says. "If you treat it with critical-fluid carbon dioxide, you drain out almost all the oil."

Currently the firm holds about 1,400 patents on everything from an ultrasimple new solar water-heating system to a gizmo that could replace the conventional piston pump. According to engineer John McCullough (p. 114), the new high-efficiency pump/compressor mechanism—called "scroll" technology—will find its way into everything from auto fuel pumps, air conditioners, refrigerators and hospital blood pumps to new hydrofoil warships.

Meanwhile, other ADL researchers are developing a biodegradable capsule that physicians will be able to implant under a patient's skin—the capsule releases medicine through its polymer walls in precisely the right dosage rates. According to its developer, Kenneth R. Sidman, this "drug depot" can last for one month or two years, then dissolve harmlessly.

"Developing drug depots meant bringing polymer chemistry, applied organic chemistry, chemical engineering, biomedical engineering and risk analysis to bear on a single problem," says Sidman. "That's the advantage of an organization like this—it's set up to bring the right people together."

Recently, the company aimed its weapon—a roomful of selected experts—at a question posed by a large corporation: does the country's rapidly increasing number of retirees open up new business opportunities?

The six consultants tossed the subject around like infielders warming up. What about their own aging parents? Medical trends? Treatment of the aged in Japan, Denmark, Sweden? How about special travel packages for the aged? "No, too narrow," someone snapped. The discussion blundered into cul-de-sacs and wandered away on tangents. Then Martin L.

From the lead-balloon people

In Brazil, Suzanne Kase (right) helped plan and set up four new teaching hospitals.

Hustling through the Frankfurt airport is Tom Sommerlatte, from the Wiesbaden office.

Ernst, vice president for management sciences, suggested that elderly people—victims of the breakdown of nuclear families—increasingly are on their own.

"If you could have free-market congregate housing with all services on the premises . . ." mused vice president D. Elliott Wilbur jr., an expert on housing and construction.

"The physician supply is shooting up, so you should be able to get doctors to contract for medical services, since you're providing a captive audience," added Jack Kasten, vice president for health and manpower.

"These places would be ideal markets for video tapes, discs, a library sort of service," suggested David L. Fishman, an entertainment expert. "Purchasing the hardware would be a question. . . ."

"Will government subsidies for this sort of thing even exist?" protested Harry G. Foden, a specialist in public policy.

"So what?" shot back Wilbur. "The biggest area of opportunity is going to be middle-income people, above the subsidy level."

"Here's how it could work," said Martin Ernst. "You retire and sell your home, investing some of the money in the congregate housing. You get housing and services—food and medical, say—for life. When you die, your housing reverts back to the company for resale."

Sabers clanged over particulars. Should this nationwide chain come in several classes, for different income levels? What about a monthly maintenance fee, guaranteed to be no larger than one's Social Security check? "Or should we offer different packages of services for different fees?" asked Fishman.

"What about contact with younger people, so the residents aren't isolated?" added Alma Triner. Should the financing be via syndication, with the company acting as the chain's manager?

"Enough!" someone said, and the meeting was over.

"We usually start an unusual job like this by opening up possibilities," explains Ernst. "The trick is knowing when it's time to stop opening up and start focusing down."

Between meetings, team members work on assignments. One might look into the demography, others the ins-and-outs of real-estate syndication or relevant service companies. Meetings often turn into intellectual shoot-outs. Nobody blinks if a junior consultant argues vehemently across the table with a senior vice president. "Our greatest asset is friction," says Elliott Wilbur.

Adds Martin Ernst: "The whole object of a consulting firm like this is to hold together an amount of ability that normally would be fissionable." But the result, usually, is fusion. When diverse specialists pool their expertise, they generally come up with ideas none could have produced alone.

ADL helped these clients, shown in cane fields, plan a Venezuelan-Colombian sugar consortium.

Senior vice president Alfred E. Wechsler cites a project that brought together specialists in medicine, management and data processing: an "electronic nurse." Sensors feed data on patients' physical conditions to a nursing station central-control panel, enabling fewer nurses to oversee more patients at less cost. "Some of the monitors sound alarms if a patient needs attention; some of them actually administer IV fluids," says Wechsler.

He notes that information transfer is a big consulting company's most important product. A new chemical plant in Morocco may benefit from waste-disposal techniques hammered out for a Rhode Island town.

Wechsler typifies this ecumenicalism. When he joined the company 20 years ago as a chemical engineer, he specialized in the performance of materials at extreme temperatures. That led him to space research—"We helped develop more instruments placed on the moon than anyone else," he says. Meanwhile he has worked on everything from the problem of permafrost ravaging hot oil-drill casings on Alaska's North Slope to assessing the risk of environmental contaminants, like mercury.

"In the Eighties, my time will be spent more and more on environmental management problems, and on the interaction between the environment, health and society," he says. "Increasingly, private businesses will be the clients because a major change is under way—companies are now concerned about the environment and health, regardless of regulations, because it's good business."

At least one change in today's business world is reflected in the company itself: growing internationalism. According to David M. Boodman, who heads its Operations Research Section, the Saudi Arabian project called for increasing production capacity from some six million barrels per day to ten million barrels. The $15 billion project was equivalent in cost to three Alaska pipelines, he says. The job was complex because the Saudis had to build new ports, new cities, new communications networks, new transportation systems. ADL's assignment was to work out the worldwide logistics for the massive construction project—where would the nuts, bolts, steel girders and steam shovels come from? How would they be transported to Saudi Arabia? What workers would be needed? Where would they be hired? Which equipment should be brought in first?

"Just for example," says Boodman, "we had to develop rules for stuffing containers to be loaded on ships—not only to meet physical constraints, but also so that everything could be unloaded in the proper

In Riyadh, Benjamin Fogler, ADL emissary, confers with a Saudi Arabian official.

order. There are people here who are students of that specialized subject."

If staff members at the Cambridge headquarters are not due in Dhahran tomorrow, then they may be just back from Caracas, Juneau or New Delhi. John Magee, awakened by a hotel telephone operator, once asked her where he was. "Room 1829," she said. "No," he said, "I mean what country?"

During any given year, ADL consultants are busy in 55 nations on six continents. The firm maintains offices in San Francisco, Washington, Toronto, Athens, Brussels, Cambridge (England), London, Madrid, Paris, Rio de Janeiro, São Paulo, Tokyo and Wiesbaden. And the company is constantly moving into new areas. In fact, if Peter E. Glaser, senior vice president for engineering services (pp. 114-115), had his way, the company ultimately would have an outer-space branch. A Czech refugee from the Nazis, a World War II tank commander in the Free Czechoslovak Army and a visionary engineer, Glaser's first ADL project in the early 1950s was compact refrigerator insulation. But his work quickly became more far-reaching.

As early as 1961, when fuel still was cheap, Glaser gave a talk in Rome on the industrial potential of solar energy. Then in 1968, after working on the space program, he made a not-so-modest proposal: why not orbit 25-square-mile solar collectors? They would convert solar energy to low-density microwaves and beam them to terrestrial receiving stations, which would then transform the microwaves into electricity to be fed into power grids.

In April 1980, after three years of study, the U. S. Department of Energy and NASA affirmed that the project was feasible. But Glaser says the concept of solar-power satellites still has opposition from those with vested interests in other major energy sources as well as from those who think "small is beautiful." And Glaser believes that "sunsats" should be given serious attention as a future energy option, especially now that we have the space shuttle. "The shuttle is as significant as the golden spike that completed the railroad going West," he says.

What else do the ADL oracles see ahead? The company already is rebuilding its life-sciences laboratories, enlarging such professional activities as agribusiness, preparing for a revolution in biology and bioengineering, says John Magee. He sees another revolution in how work gets done as industry turns to "CAD/CAM"—"Computer-Assisted Design/Computer-Assisted Manufacturing."

"Right now, nearly two-thirds of our labor force are in white-collar jobs, and that is an area where we must improve productivity," Magee says. "For instance, using computers to help design new products will cut engineering lead times by a factor of five or ten."

Peering into their crystal balls, these consultants see a world increasingly stressed by the disparity between developed and developing nations as communications technology makes the gap impossible to ignore. They see more corporate decision-making by workers—but a growing sense of depersonalization and loss of control as people find their lives shaped more and more by inscrutable technologies. They see developed countries giving up certain industries to the Third World. And they don't regard a single one of those problems as "none of our business."

Dane Penland

ADL made this silk purse out of a sow's ear; it is now in the Smithsonian's collections.

At night in St. Louis, Philip McGarrigle takes sewer-water samples for an ADL project.

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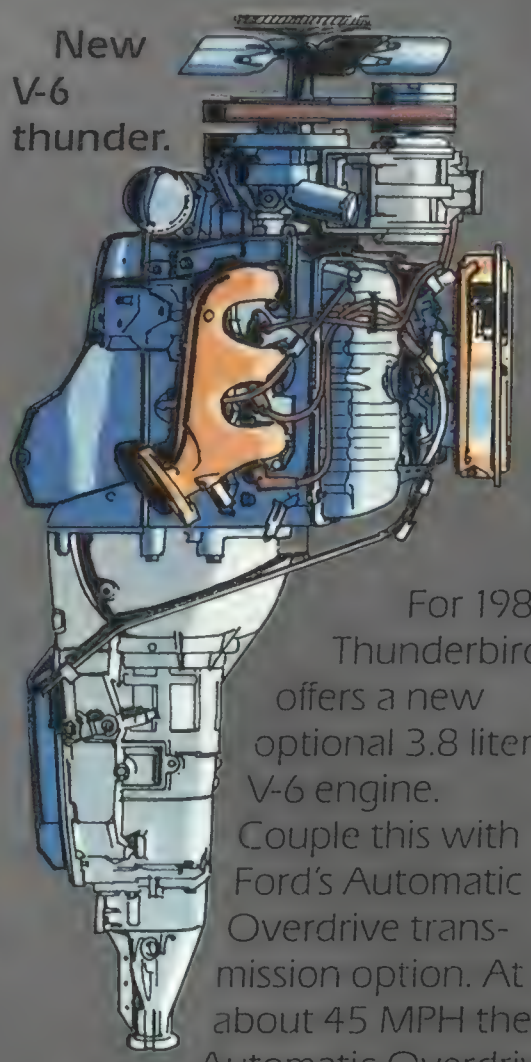

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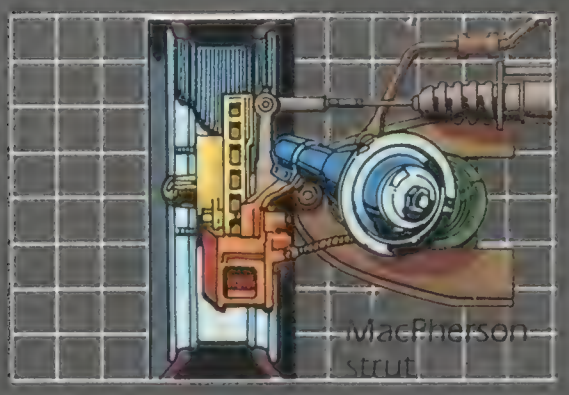

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THUNDERBIRD

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By Michael Blumenthal

Ossabaw island—haven for both Man and animals

Painters, writers, composers and scientists all mingle with the thriving wildlife of an unspoiled stretch of Georgia's coast

It is a Friday afternoon in February, the kind of billowy, pre-spring day off the Georgia coast when the camellias have broken into flower and the first tentative buds of the Japanese magnolias and yellow jasmine suggest the explosion of color that will be a Southern spring. Some 20 miles south of Savannah, the island boat *Eleanor IV* works its way across the Vernon River through pelican-, egret- and heron-haunted coastal marshes of Georgia's barrier islands, heading toward a long dock and causeway surrounded by brackish, marshy ponds off whose high grasses the late afternoon sun shimmers.

As the boat pulls up to the dock, a tall, bearded man jumps ashore. Off to one side of the dock a family of four Sicilian donkeys calmly surveys the scene.

Among the disembarking passengers this particular afternoon are the 78-year-old author of 23 books and former tutor to the Crown Prince of Japan; a New York psychotherapist, author of a moving account of her victory over dyslexia; a cinéma verité filmmaker from Cambridge, Massachusetts; and a Peterborough, New Hampshire, writer and symphony orchestra flutist.

The passengers and their belongings are loaded into a waiting Volkswagen van under the guidance of their hosts, Al Bradford and Carol Burdick, who is introduced as "C.B." and is the driver. The van heads down the causeway and turns left onto a dirt-and-oyster-shell road for about a mile until it reaches a pair of large, stuccoed gateposts overhung with Spanish moss and ivy. "Get ready," Bradford informs the passengers as the van rattles over the cattle guards, "you're about to enter the 17th century."

Before them as they pass between the gateposts is, indeed, a breathtaking sight: beyond a huge courtyard speckled with camellias, moss-draped live oaks, cedar

Film maker Ross McElwee watches the sunrise from the Main House of the Ossabaw Island Project.

Michael Blumenthal, a lawyer formerly with the National Endowment for the Humanities, is the author of Sympathetic Magic, *a book of poems.*

and pine sits a massive, pink stucco Spanish-style mansion, its red-tiled roof glistening luminously in the late-afternoon sun. Among the surrounding trees, a pileated woodpecker, its red crest flaming between draperies of moss, soars up into the light.

If this sounds somewhat like the beginning of a journey into another world, there is good reason: it is. It is a journey into a world still echoing with the resonance of Indian tribes, Spanish invaders, pirates and pre-Civil War plantations. It is, more important today, a world dedicated—according to a description written by Ossabaw Island Project codirector Al Bradford—to the preservation of "two types of endangered ecosystems. One is the marsh-estuarine-barrier island ecosystem. . . . The other is the inner ecosystem of creative, imaginative, skilled persons, an ecosystem that is the spawning ground of all . . . powerful visions."

The arrivals on this February afternoon are part of

Island haven for Man and wildlife

Ossabaw's guiding spirit is Mrs. Eleanor Torrey West, director of the Island Foundation.

Writers Elizabeth McKaughan (left) and Elizabeth Vining have lunch in Main House courtyard.

that inner ecosystem. And the outer ecosystem they have come to interact with, some 25,000 acres of marsh and upland where Spanish moss, live oak, palmetto, feral pig, alligator and white-tailed deer flourish, to name but a few, is a world much like part—an ever-diminishing part—of ours once was.

First inhabited by Indian tribes in early Mesolithic times, the five-by-nine mile barrier island that is Ossabaw has been home, in modern times, to indigo and cotton plantations, hunting preserves and the winter residence of Dr. and Mrs. Henry Norton Torrey of Michigan, who bought the island in 1924. The present phase of Ossabaw's history began in 1961 when Mrs. Eleanor Torrey ("Sandy") West, who, with a niece and nephews, inherited the island from her parents, decided that "I had to do something to share what I had with other people." And so she and her husband Clifford "invited some selected people down here—composer Samuel Barber, sculptor Harry Bertoia, a scientist, a foundation person, a lawyer, a banker, and so on."

A friendly beginning

"We brought them all together," Mrs. West recalls, "and it was absolutely marvelous. The artists didn't talk to the other artists—they talked to the bankers. And all these people got so excited they just said: 'How do we start? Let's go.' "

How the Wests got started was by founding, in 1961, the Ossabaw Island Project Foundation, a center where recommended individuals "of creative thought and purpose in the arts, sciences, industry, education and religion" could come to pursue work or study without interruption. Housed in the stucco mansion built by the Torreys when they bought the island in 1924, and financed largely by Mrs. West's money, the Ossabaw Island Project became the first of what are today four separate programs administered by the Foundation.

Today there are 18 of us seated at the dining table that extends almost the length of the room. Laurie Lisle, a former *Newsweek* journalist who has just published a biography of Georgia O'Keeffe, is seated beside me. Lisle has come to Ossabaw to work on an article about Katherine Anne Porter and to do some "more personal" writing.

After dessert, we adjourn to the two-story chapel-like living room for a long-standing Ossabaw tradition —coffee and tea before the huge stone fireplace. This after-dinner ritual, among other bits of the Project's traditional but unenforced sociability, may be a bit unsettling at first to those accustomed to the emphasis upon personal "space" at conventional artist colonies. Yet it reveals a great deal about why one is a fellow at

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Project member Karen Hall, on one of the island's unspoiled beaches, photographs coastal life.

Fresco of the island, below ceiling in Main House living room, is dated 1926, when house was built.

traditional artist colonies and a project member at Ossabaw: the Project, because it is housed primarily within a single structure, is something more like a family affair.

Nor is it only the human population you are forced to get to know a bit better at Ossabaw. Wanting to assure myself of my fearlessness despite the collection of herpetology manuals on the living room table and the multitude of "watch-out-for-snakes" stories that filter out onto the mainland, I embarked, flashlight in hand, on an after-coffee stroll my first night at the Project. Eyes glued to the ground, I was hardly ten steps outside the gateposts when I bumped into two of the island's feral donkeys firmly standing their ground. Still a bit too citified for free-roaming wildlife, I beat a quick retreat.

Mrs. West, for one, would hardly have been saddened by my humbling. She prides herself on the fact that "on Ossabaw, the people are confined and the animals run free—we're here by *their* permission." The numbers indeed reflect those priorities: while there are hardly ever as many as 60 people at any one time on an island twice the size of Bermuda, in addition to the Sicilian donkeys there are some 800 free-roaming feral pigs, at least as many white-tailed deer, 18 wild horses and a constantly changing number of cattle that also serve as a major source of the island's food supply.

It is, in fact, one occupational hazard of life at Ossabaw that one can get so distracted by the island's wildlife, physical beauty and sheer strangeness as to forget the primary reason for coming to Ossabaw—work. But this too—the fact, as Al Bradford puts it, of "experiencing the island"—is a crucial ingredient of the Ossabaw experience. "What's important," says Bradford, "is the fact that if, for example, a poet writes only *one* poem here, it will be a poem he couldn't have written anywhere else."

Amazingly enough, however, not everyone succumbs to the purely natural attractions of Ossabaw. Some, like novelist Eileen Simpson, prefer the less visible but equally valuable enticements the Project offers the artist: solitude and quiet. A New York psychotherapist who has published both a novel, *The Maze*, and a non-fiction book, *Reversals*, she followed a Draconian work schedule.

"I'd like to come here sometime when I'm just beginning something, when I don't feel so pushed. But," Simpson reflected contentedly, "it's been a great joy just to be able to look out and see the sky and light."

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Feral horse, descendant of stock brought in for the Torrey children, grazes next to white egret.

The sky held only faint traces of morning light, but already the ivory tones of composer Peter Lewis' piano were reverberating through the woods behind the Main House. Lewis, who was working on a trio for piano, clarinet and cello, was another of the Project's self-confessed "workaholics," and—to those who might entertain a craving for more isolated work space than is offered by most of the Project studios—a most fortunate one.

Because most studios are either in or appended to the Main House, the Project can accommodate only one composer at a time, but his or her studio is the envy of all. Set among the live oaks and palmettos some 300 yards behind the mansion, it is a small wooden cabin, around whose environs a red-shouldered hawk patrols the woods and clusters of white-tailed deer feed on the well-grazed underbrush.

Yet Lewis, like Simpson, felt that the direct physical influence of the island on his work was minimal. "I just don't work that way," he said. "The island may influence the kind of solutions I come to, but I can never listen to a piece and say—ah ha! That's the Mexico influence, or the Ossabaw influence, or wherever I've been."

For others, however, "the Ossabaw influence," as Lewis calls it, was rather dramatic—and often unpredictable. Elizabeth Arthur, a Vermont writer who came to Ossabaw to finish work on a second book, found herself inspired—for the first time in many years—to write poems. Playwright Dan Meltzer also found himself suddenly turned poet, and in rather comic form. Meltzer compiled a substantial portfolio of what he called "Ossabaw limericks," one of which goes:

No hunting permitted on Ossabaw
Not with rifle, blow-gun or crossabaw.
Tread not the Savannah grasses,
Molest not our piggies, deer and asses,
Lest we hang you with the Spanish mossabaw.

Ossabaw's three beaches—South End Beach, Middle Beach and Bradley Beach—are half-mile-wide stretches of smooth sand and weathered wood. Generously strewn with horseshoe crab shells, sea fans, olive shells, sand dollars and cockles, they are a rich source of inspiration or of purely contemplative pleasure.

Dora Donovan, a painter from Ithaca, New York, came to Ossabaw already hard at work on a series of paintings entitled "Entropy." They revolved, as she described it, around the concept of "the infinite variety that exists within sameness," a variety to which Ossabaw's beaches are a living testimony. Donovan returned from her first trip to South Beach bearing an extensive booty of agatelike olive shells and deeply textured cockles, excited by the possibilities of using the shell motif as part of the series.

Dana Salisbury, a painter from Northampton, Massachusetts, was another frequent beach wanderer, but for more purely meditative reasons. "I realized here how much I am in love with my own physicality and with the physical world," she said. "And—more importantly—the assumption here that what I do is valuable is an extraordinary feeling for me, a kind of validation."

Validation indeed is, for Sandy West, what the Foundation and the island are all about. "Ossabaw,"

Sicilian donkeys, imported 16 years ago, multiplied so rapidly their numbers had to be cut by vasectomies.

says Mrs. West, "is a catalyst for all kinds of people, with or without portfolio. I always thought it would be a great idea," she adds mischievously, "to have a great big trash can on the Vernon View dock labeled: EXPERTISE. Why, if you were the proper kind of person," she adds, "you could come here and seem to be doing nothing at all, but that's when your imagination is really going into high gear."

"Nothing at all," however, is hardly what independent film maker Ross McElwee spent his time at the Project doing. It was usually about 7 A.M. when I passed McElwee's stuccoed studio on my morning walk, to find him already standing at his typewriter, working away at a text piece to accompany his latest film—a portrait of his home town, Charlotte, North Carolina, entitled *Back Yard*.

Dramatically less visible than McElwee was one Project member none of us ever saw, but who was a constantly felt presence. Her name was Stevie Smith, a major contemporary British poet who died in 1971 and whose spirit—in the company of her biographers, Jack Barbera and Bill McBrien—was very much in our midst.

Stevie's presence, real or imagined, was not inconsistent with an experience of Elizabeth Gray Vining's, at 78 our group's "senior citizen," during her first visit to Ossabaw some eight years earlier. Vining was then at work on a book-length diary entitled *Being Seventy*. One night, as she slept in her ground-floor room in the mansion, she heard a voice telling her "Scream" and then "Scream louder" and learned later from others that she had actually screamed out her window.

Project Genesis, begun in 1970, involves participants in down-to-earth living while engaged in research.

Main House gateposts frame winding drive to the stuccoed Spanish-style mansion facing the Sound.

In addition to her description of this bizarre event, Vining's book contains many pages of more tranquil prose as well as glowing praise of Sandy West, whom she describes as a "modern Canute bidding the waves roll back." West's 20-year-long struggle to preserve Ossabaw in its natural condition culminated in 1978, when Ossabaw was purchased by the state of Georgia, and the island became Georgia's first Heritage Preserve. The Foundation is able to continue its programs under an agreement with the Georgia Department of Natural Resources. But for the 11th-hour donation of $4 million by Atlanta philanthropist Robert W. Woodruff and the Wests' donation of more than half the island's $16 million assessed value, Ossabaw today might well be in the hands of developers.

One part of the island that is most clearly not in the hands of developers is Middle Place, home of Ossabaw's far more rustic experiment in cooperative living, Project Genesis. Established in 1970, Genesis offers an experience totally different from the Project's more cultivated seriousness. In fact, compared to the rustically self-sufficient environs of Middle Place, life at the Project has the quality of being at an elegant resort hotel.

Genesis—unlike the Project, which operates only between October and June—is a year-round community, usually consisting of around ten members. In addition to their own projects, members share community tasks such as cooking, milking the dairy cow, gardening, maintaining and building Genesis structures, and any other projects the directors choose to initiate. As codirector Wini Wood, a PhD candidate

in linguistics, put it, "At Genesis, you have a chance to get your body involved with your mind."

Genesis members live in a variety of simple structures, a Genesis-built tree house and A-frame, a converted island boat and a timber-framed studio/residence. Hot water is provided by a solar water heater (there is no plumbing or electricity), and a homemade outhouse offers so consoling a view of sunset on the marsh that one tends to linger there.

In addition to the Project and Genesis, two other Foundation programs also allow Ossabaw to become part of you. Under the Professional Research Program, scientists and graduate students in areas ranging from herpetology to dendrochronology have come to the island for both short- and long-term projects. Since 1971 the Ossabaw Loggerhead Seaturtle Program has conducted a long-term conservation project on behalf of this endangered species, whose nests have been dangerously ravaged by predators (including land developers) over the years.

Public Use and Education, the fourth island program, is described by Mrs. West as "an outreach program to allow us to share the island, even for short periods, with any group that can benefit by being here." Past participants have included a social worker and youths from his probationary case load, a group of handicapped persons, high school groups, lepidopterists, and specialized study groups from dozens of colleges all over the United States.

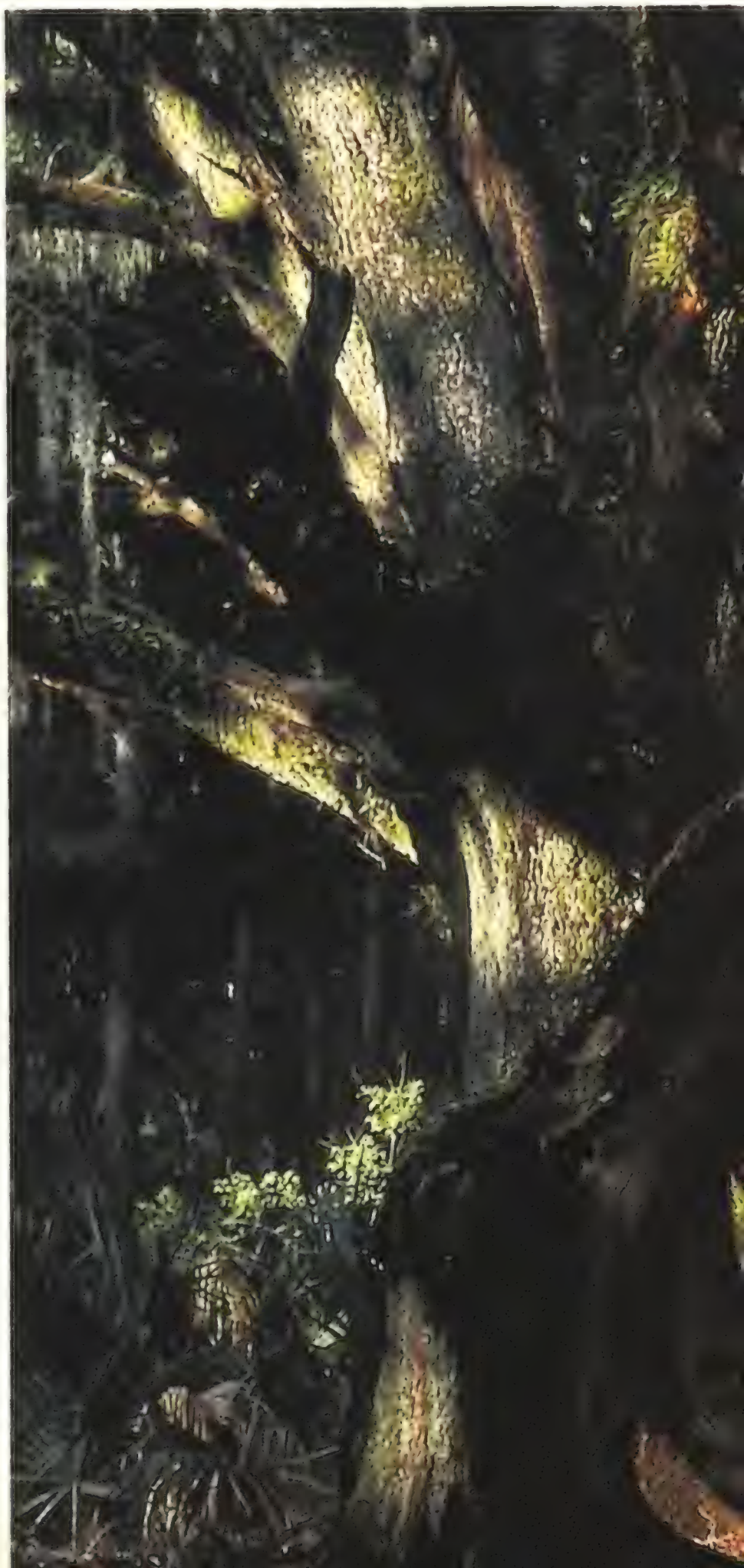
It is my last night at the old walnut table in the Main House. Already, the group's makeup has radically altered since my arrival some four weeks earlier. Jack Barbera and Bill McBrien have left for MacDowell. Eileen Simpson is back in New York. Dana Salisbury is working once against at her easel in Northampton. Five new Project members have arrived before the weekend.

Queenie Mae Williams, one of the Project cooks and, along with Mrs. West, very much the island matriarch, enters the dining room and asks us to remain seated. Asking us all to clasp hands around the table, she suddenly breaks into an old hymn, "Precious Lord, take my hand," circling the table as she pauses between each pair of us and grasps our hands in turn. When she finishes, she stands at the head of the table and says, "I just want you all to know that Queenie loves you. The Lord bless you all."

A light rain is falling the next morning, as Elizabeth Gray Vining, her friend and fellow writer Elizabeth McKaughan and I board the *Eleanor IV* for Savannah.

As we pull to within sight of the Vernon View dock, the sun breaks from behind the clouds into a warm, springlike Georgia day much like that of my arrival. Later that afternoon, the codirectors Al and C.B. will once again greet a group of new Project Members and transport them across the sound.

"I have seen fiddler crabs, hundreds of them," wrote Vining in *Being Seventy* some eight years earlier, "sitting by their holes, waving their big pink claws to

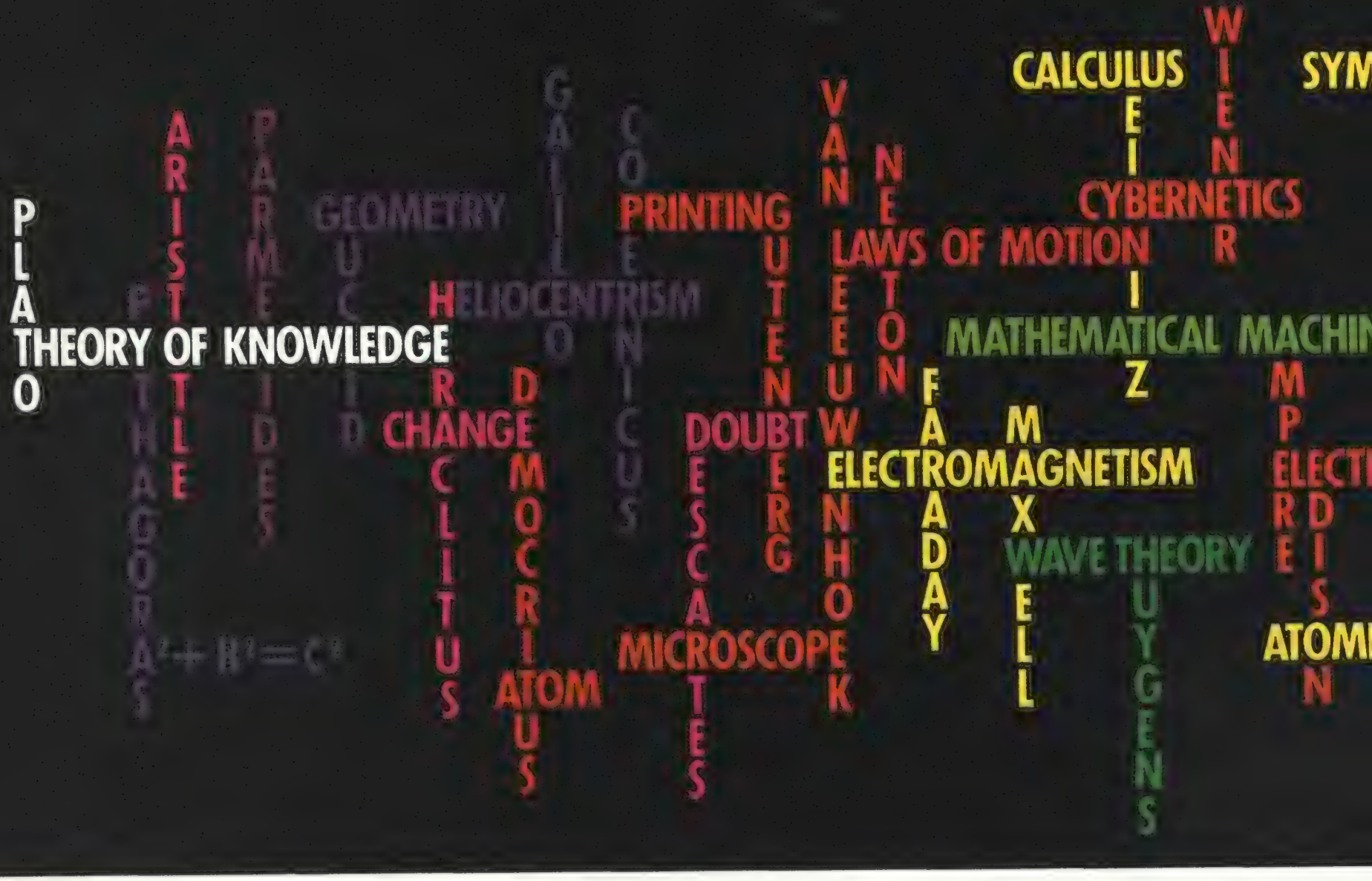


A wild turkey struts down a stately avenue arched by moss-covered live oaks planted in 1760.

attract a mate. . . . I have seen a black anhinga among the white egrets at the herony. I have walked and skidded and squelched ankle-deep in the marsh and learned why marshland is so important to our very existence. I have sat at the long table in the formal dining room night after night with stimulating and sometimes brilliant people. . . . I have walked on a broad, hard beach where for fifteen miles there was no human being except those of our own small group. . . . I have outfaced a boar and a cow with a calf, have seen deer running among the trees. . . . And I have had hour after uninterrupted hour to work on my book. Twenty-six days of it."

As the boat made its way across the Vernon River from Ossabaw that morning, I asked Elizabeth Vining how Ossabaw has changed since the time when she wrote those words.

"It never changes," she replied. "It's timeless."



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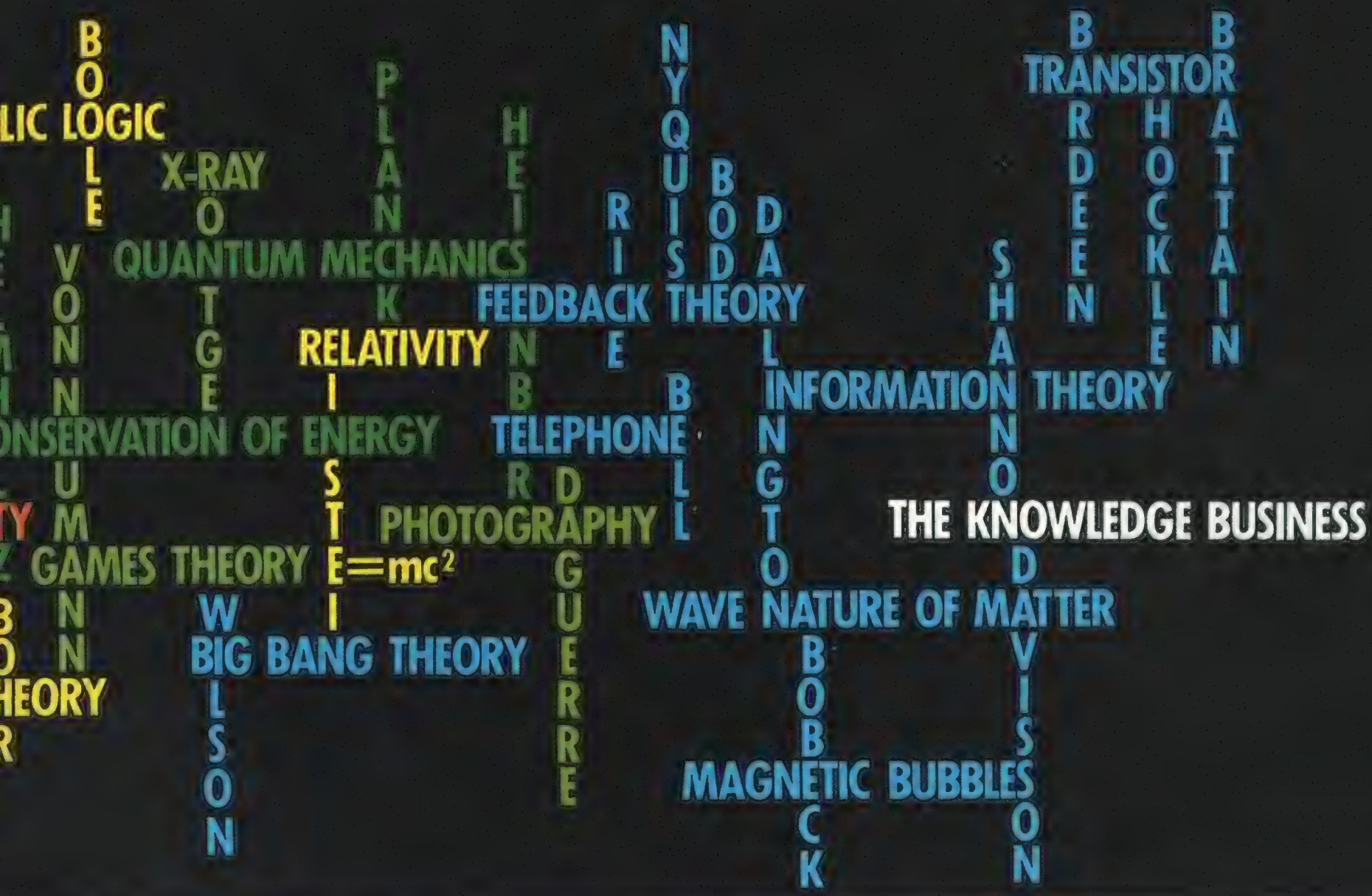

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The knowledge business can help you move into the Information Age.

The knowledge business

By Jack Fincher

Larry Boyce bikes the West to hunt for–drab ceilings!

With paints, stencils and evangelistic zeal, a young artisan restores and creates lavish decorations in Victorian houses

Leaving California's Mt. Raymond behind, Boyce climbs up Ebbetts Pass to civilization and ceilings.

On the road aboard his bicycle, the *USS Wanderlust*, a jaunty, bearded Larry Boyce roams the West, spreading the gospel of ornately painted Victorian ceilings—and of the hardy 19th-century artisans whose brushes and stencils first turned vast expanses of overhead nothingness into the kaleidoscopic decorations that those ceilings used to be. The 35-year-old itinerant painter/craftsman is the self-styled high priest of the florid crown, cornice and frieze, who methodically seeks out owners of Victorian houses and sets about convincing them that they cannot live another day with their dull, unstenciled ceilings. A consummate convincer, he recently interrupted his circuit ride to have a portrait made (opposite) within the refurbished confines of a satisfied customer's parlor.

Excluding his clients, Boyce considers the lackluster rest of us to be a nation of Philistine homeowners gone downhill (in the ceiling department, anyway) to monochromatic latex and whitewash: "Little old ladies come up to me and say, 'These ceilings were never painted anything but white,' when in fact they never *saw* a Victorian building until it had been *repainted*."

If you take his word for it (he collects snippets of Western lore the way some people collect old cranberry glass: go for the rosy glow and never mind the cracks and jagged edges that suggest it won't hold water), the legacy of bland white ceilings was an unfortunate outgrowth of the World's Columbian Exposition of 1893. "Apparently the exposition buildings originally were to be done in bright, clashing colors. But the concept was changed to neoclassical—all in white. That's why the fair was called the White City and the style caught on. A new image for a new age, you might say."

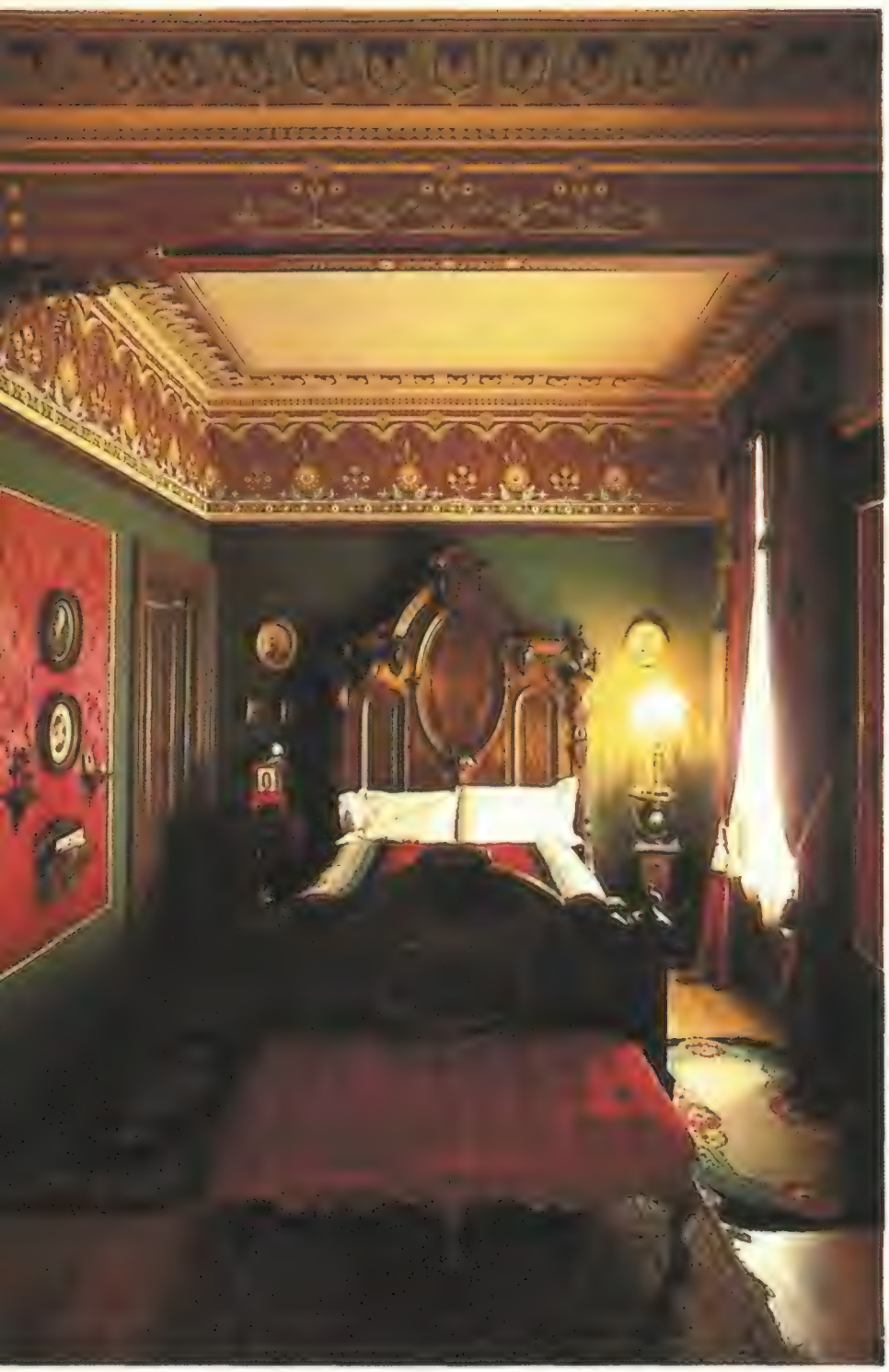
As a result of this random inheritance, Boyce would have you believe, few of us today are equipped to appreciate the text of his fixed sermon: "A room without a painted ceiling is like a world without a sky." But wait, all ye sinners. When Boyce is around—a bizarre vision in his traveling costume of black hat, tinted racing goggles, cotton jump suit and work boots—repentance is ever at hand.

Indeed, since resurrecting his curious craft out of dusty library books seven years ago, he has restored, recreated or just plain invented more than 150 ceilings from the Gilded Age, all the while pedaling an esti-

Attired more formally than usual, Larry Boyce sits for his portrait amid a client's Victorian splendor.

Photographs by Chad Slattery

Purveyor of painted ceilings



This bedroom ceiling in Richard Reutlinger's home in San Francisco is Boyce's most elaborate work so far.

mated 7,000 miles a year from the Pacific coast to the Rockies and back in search of Victorian homes whose spruced-up, freshly-coated exteriors signal the presence of potential clients inside. When he finds them, out comes an album of glossy color photographs showing choice examples of his work. Out, too, if he senses the onset of conversion, come samples from his collection of 35 period pattern books, including his bible, *The Grammar of Ornament* (1856) by Owen Jones, a leading designer in the British decorative arts revival which decreed that labor can be artful.

Currently, Boyce will sell you a ceiling job for anywhere from $1,000 to $2,500, depending on its size and complexity. If this sounds exorbitant, consider that the more intricate patterns may require the careful cutting and laying on of a single Mylar stencil for every dollar spent. The most complicated to date took him and a pickup crew of two almost eight weeks of tedious taping and daubing—all but mindless work that nearly caused their brains, in Boyce's words, to "fry out." They were paid $1,000. "I had to borrow another $2,000 to finish. For a room like that I'd ask $6,000 to $7,000 now."

Osmosing the history of art

The first son of a middle-class family in the Detroit suburb of Farmington, Boyce got what academic training he has at Oakland University in Rochester, Michigan. From there he went to work modeling for drawing classes at the University of Michigan while soaking up "by osmosis" the art history that became, with bicycles and the Old West, his consuming passion.

A tour of Renaissance Europe with a professor friend was followed by stints of designing discothèques in Manhattan, working in a commune in British Columbia and rock climbing in Yosemite—five years that left him branded, at least temporarily, "a wacky bum" by his bookkeeper mother and contractor father. Finally, in 1973, when he fetched up in the vibrant middle of San Francisco's burgeoning Victorian rejuvenation, it was, to hear him tell it, love at first site: "I was infatuated with what I saw. They were *fantastic*, those old Victorians. So I decided to bicycle the West, seeing all the little mining towns I could."

Pedaling from place to place, Boyce rang the doorbell of every aging and elegant example of 19th-century architecture that intrigued him, offering to do anything for a dollar an hour if the occupants would guarantee him a week's board and let him camp in the backyard. He traveled by word of mouth: "People in Santa Fe would tell me about a Victorian in Las Vegas, New Mexico; people there, about one in Chama [up near the Colorado border]." By the time he got to Seattle, near the end of his first year on the road, a

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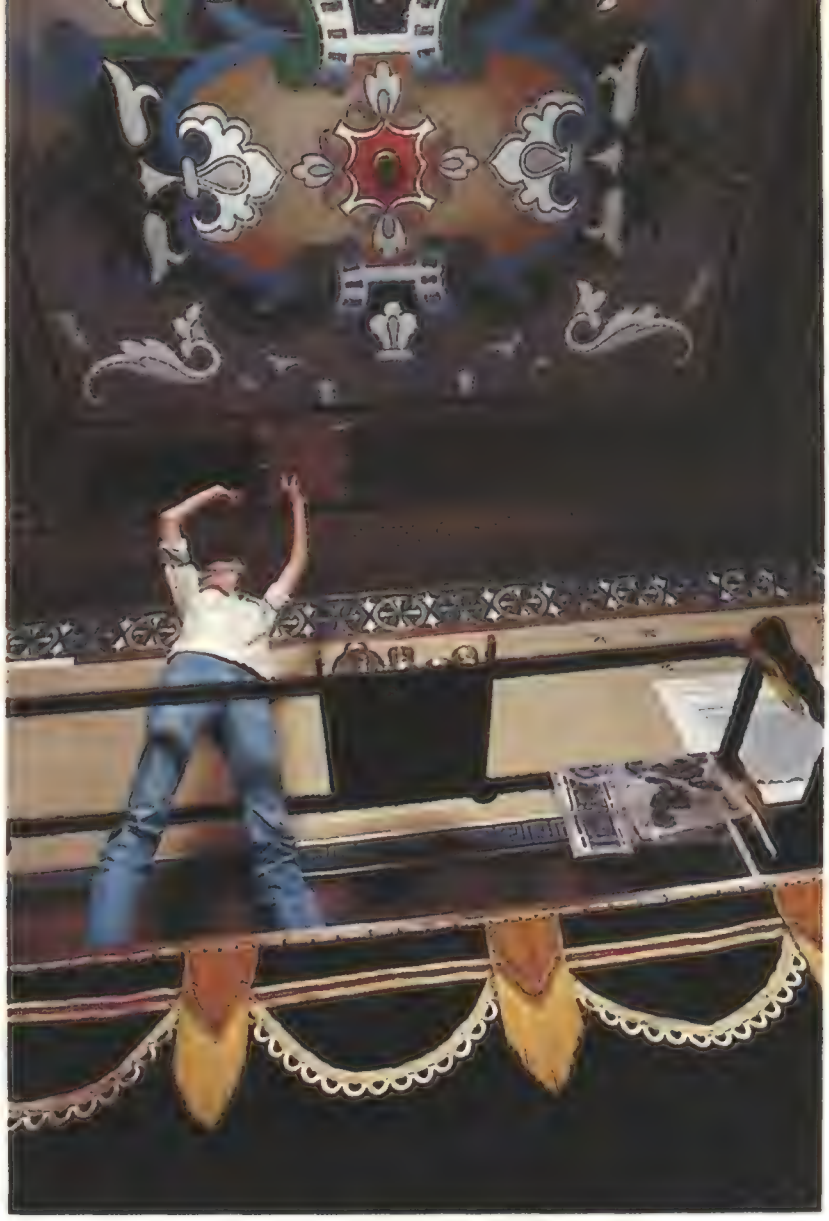
Boyce (front) painted the James Cathcarts' ceilings several years ago. Now he teaches them how to stencil.



Legs braced on the opulent scaffold, one of Boyce's Sacramento crew members completes an office ceiling.

vague idea had evolved into his calling: "I got a job retouching wallpaper that was almost gone. I repainted, retraced, rebuilt it. That was fun!"

Back in San Francisco a few weeks later, he was commissioned to do his first ceiling, one already ornamented with rosettes badly in need of a touch-up. "I think what started me off were the ceilings I had seen in the Barberini palace in Italy," he recalls. "They really weren't that hard. Up close you could see they were very broad, more like sign paintings. They used big cutouts, but not stenciling."

Almost before he knew it, his calling became a mission: to restore, both as craftsman and amateur historian, our fading memory of a golden age in the West. But not without a show-biz assault upon the imaginations of householders from Denver to Salt Lake City to San Francisco. Decked out in top hat and frock coat (or Inverness cape or spiffy 1910 Marine tunic), a studiedly theatrical Boyce would bicycle up to a promising Victorian house, ring the doorbell and grandly announce that he was the "very best man in the West at painting ceilings," displaying with a flourish his book of photographs.

He has been at it ever since, pursuing in the process a hardscrabble and high-tech existence that he best describes himself: "I spend most of my time constantly transiting the West. This kind of painting is perfect because the stencils you cut are never used again and they destroy paint brushes. So when you finish a job, you leave everything behind you. I love camping out. The peace, the solitude. I'm very sociable and speedy on the job, but when I'm on my bicycle I get very calm and quiet. I've got a tape deck and headphones and I alternate between rock and roll and Mozart.

"You try to decide simple things, like if it's going to rain and what you'll do if it does. If it's a shower, I just sit beside the road with a tarp over me and wait. But if it's a frontal system, I'll make camp, set up my tent on a rising curve so I can see what's happening without being bothered. Not that I ever have been. Sometimes you get caught up in storms so long and violent you just sit in your tent for days being bored. I'm going to get a miniweather computer for my handlebars. It keeps barometric pressure and such more accurately than the regional forecast because it's *right there.*

"Most bikes are super-lightweight racers but mine's a touring bike. It weighs 125 pounds loaded down. I'm on my third bike. The first I traded as too light and

A frequent contributor to SMITHSONIAN, *the author most recently wrote on the Society for Creative Anachronism in June 1981. His home is in Oregon.*

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In Virginia City, Nevada, Don McBride, on veranda of his Victorian home, studies Boyce's patterns.

Dedicated camper Boyce likes to watch network news on battery-operated television set he carries.

Communing with a steer breaks a day's ride for Boyce, who calls all bovines "Daisy," swears they respond.

the second sort of disassembled coming up a steep grade in an Arizona rainstorm.

"I eat tons of food. Lots of protein, tuna fish. I carb out, too, plus carrots for good night vision and sweets for quick energy. Noodles I cook a lot in the mountains because there's water everywhere. I get up at sunrise and bicycle until late afternoon. My pulse rate is 48!

"There are a million little dogs in New Mexico, hiding in small towns at the bottom of little valleys. You start down fast, hoping to get halfway through before the first one barks. Then you come flying out the other end with 50 of them behind you. I've never been bitten, but I *was* chased by a buffalo in Yellowstone."

Says Boyce of his work: "Only one client has ever disliked what I did. He paid for it and had it done over again. A woman locked my scaffold up in her house when we didn't do enough to suit her—we were four weeks over schedule, she was so demanding—and I had to take her to court to get it out." His scaffold (p.140), which is upholstered in purple velour and decorated with gold braid, and which he ships from job to job, serves as an ornate and functional stage prop.

"One guy," Boyce rambles on, "ended up taking my designs and doing the job himself. I don't mind that. I'm not afraid of copyists. It's a compliment. My labor is a gift from God. I get my crews everywhere. Meet them on the bus, put ads in the newspaper. I say that I paint Victorian ceilings and I'm looking for people who can stand boring work for six weeks. I don't hire artists; leave them with a Victorian stencil and when you get back, they've painted Chinese pagodas.

"Once I tried roller skating between Denver and Boulder. It was awful, the worst thing I'd ever done in my life. You've got all those hills and when you get going really fast, stones shoot up from the road and from the semis flying past you. Bicycling is better.

"People ask if I'm recreating a Western itinerant artist's life-style. I don't know. Only the painters in New England and the South were that well documented. They worked for room and board and enough money to stay drunk at the local pub. I do the same thing, sort of. After four months on the job in Salt Lake City, I sailed off to Southern California and did nothing for weeks but go from bar to bar, except I'm a teetotaler, so I drank $1,200 worth of orange juice."

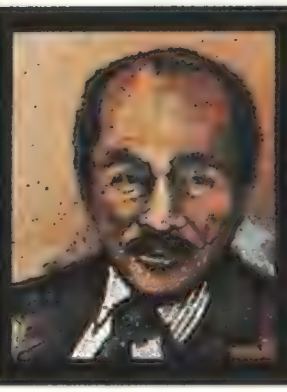
Boyce thinks the early Western painters had to move fast to beat the railroads that were bringing wallpaper from the East—a cheaper way to decorate. Who knows? If he couples today's decline in rail service with ever-stronger bike frames, time may be on his side.

Intricate designs on walls and ceiling of the Cathcart Sacramento home reveal Boyce's skill with stencils.

The inspiration for this series was the question, "What are the most critical issues facing the industries in which LTV is active?"

LTV. Looking Ahead

What is America's defense responsibility for the rest of the world? Sadat vs. one of America's brilliant educators



ACCEPT RESPONSIBILITY

Anwar Sadat
President
Arab Republic of Egypt

Democracy is essentially a matter of ethics, and in a democracy we must stand ready for a daily test of ethics.

Throughout the 70's you Americans suffered from your Vietnam complex. This gave the Soviets their freedom of action.

In Africa and the Middle East, the Soviets have built three belts of security for themselves. The first belt stretches from Angola to Mozambique. The second belt runs from Afghanistan through the anarchy of Iran, then South Yemen, Ethiopia, and finally Libya. The third belt is now under construction. Libya and Syria are starting a union together. The Soviet Union has already signed a treaty with Syria. This would be automatic in the case of Libya.

Look at the map. These three belts are clearly seen. They threaten us. We are a small country. But if the Soviets try to consolidate these belts, I shall fight.

If you in America do not again take up your responsibilities, as the first superpower of the world and the one which supports peace, all of us are doomed. We shall see the Soviet Union in the Persian Gulf as well as in the Mediterranean. We shall see them putting their puppets everywhere. And we know what it means to be a puppet of the Soviet Union. They foreclose people's dreams. They cancel out all logic. For they themselves are robots. It is only the head of the party who can act.

The forces of peace can win. I have dealt with the Soviets for a long time. Check them, and they will pull back.

For three years I have told the Americans this. I have said to the United States and the Western European nations that I will give them facilities to defend their position in the Persian Gulf. The collapse of the oil facilities there could mean the collapse of Western civilization. Without this oil the factories will stop. Look at all your tanks in NATO. Without oil they are scarecrows.

Of course to share our facilities with you and to cooperate in other economic matters is not only in your interest. It is in our interest. To whom will we send our oil, if not the West? Who will give us the know-how to rebuild our countries? Who will in the end share with us the nuclear energy to replace oil, if Western civilization collapses?

The Soviet Union will not give us these things. They have new technology in the military field only.

In the 80's there must be a new peaceful order in the world. I believe that we in Egypt can participate. To protect this order, the U.S. must accept its responsibilities.

You Americans did not ask me for facilities to reach the hostages in Iran. But one day I came and said that I was ready to give the United States such facilities.

I remain ready to offer any facilities that will help you reach the Gulf states. The face of the United States has changed for us. From that of the policeman—who represented imperialism and colonialism—to that of the peacemaker.

NO RESPONSIBILITY

Noam Chomsky
Massachusetts Institute of Technology
Professor of Linguistics

States use their power to defend the "National Interest," a mystification devised to conceal the special interest of those with domestic power.

Typically, the "defense of the national interest" policy is disguised in high-sounding rhetoric, which we dismiss with contempt when the official enemy "defends freedom and socialism" by sending tanks to Berlin, Budapest, Prague or Kabul, while solemnly reciting it when our own state acts in a similar way.

When the U.S. Air Force began the systematic bombardment of rural South Vietnam in 1962, it was defending those who were concerned over the "domino effect" of a successful nationalist-communist revolution that might be emulated elsewhere. The aggression was masked as defense against "internal aggression" by Vietnamese—indeed, South Vietnamese.

In support of "free" people?

In 1947, Truman announced that the U.S. would "support free people who are resisting attempted subjugation by armed minorities or by outside pressures," specifically, the Greek royalist elites and Nazi collaborators restored to power by the British Army, by then unable to repress the rebellion caused largely by British-backed terrorism.

The U.S. proceeded to defend the Greeks from "internal aggression" by supervising a program of massive repression, tens of thousands of political prisoners and exiles, political executions, reeducation camps, forced population removal, etc., exactly as any rational person reading the Truman doctrine would have predicted. In this case too, what was feared was the domino effect.

When the U.S. backed an invasion force in Guatemala in

1954, overthrowing a mildly reformist democratic government and installing a regime whose descendants still administer a huge reign of terror, it was defending the "national interest" but nothing else. The same is true of the destruction of the peasant society of northern Laos, the arming of mass murderers in Indonesia and El Salvador, and on and on.

Cold war victories

In each case, the propaganda system invokes the threat of the superpower enemy, exactly as the USSR does. The cold war has been highly functional for the superpowers, providing each with a framework for carrying out its designs within the reach of its power. Hence its persistence, despite the threat of mutual annihilation.

The world, however, is not what it once was. The relative decline of Soviet and American power brings forth new and increasingly assertive rivals. The EEC is moving slowly toward a more independent role, which may engage it in conflict with the U.S. in the Middle East and elsewhere. Similarly, Japan.

Before long, pursuit of the "national interest" may require new programs, new forms of violence and terror, and new rhetoric.

WHAT THE PUBLIC THINKS

Reported by
Kenneth Schwartz
Vice President, Opinion Research Corporation

It all depended upon the kind of military help we mentioned. Advisors? Yes. Troops? No.

"How much responsibility, if any, do you think the United States has to protect other countries from takeovers or military action taken against them?" That was the question we asked the American public.

Of the 1,008 people contacted in a nationwide telephone survey for LTV by Opinion Research Corporation, seven in ten believe that the U.S. has at least a fair amount of responsibility to undertake such protection, while 25 percent believe the U.S. has little or no obligation to do so. The remaining 5 percent have no opinion on the subject.

However, Americans are quite selective when it comes to the kind of military help they believe the U.S. should give a foreign country threatened by aggression.

Advisors vs. troops

"If a foreign country that is being threatened by aggression asks for protection, would you favor or oppose the United States sending military advisors?" Sixty percent said they would be in favor of such a move; 27 percent were opposed. Another 4 percent said "it depends"...while 9 percent had no opinion.

The question of sending troops provoked an entirely different response. Only 26 percent favored sending troops into a foreign country threatened by aggression that asked for protection. Fifty-seven percent registered their opposition to such a move. Six percent said "it depends"...and 11 percent had no opinion.

Sending and selling weapons

We also asked a question regarding *whether you would favor or oppose supplying weapons to a threatened country.* In favor: 42 percent. Opposed: 40 percent. It depends: 5 percent. No opinion: 13 percent. This was the only question where there wasn't a majority for one side of the issue.

The majority of people would favor *selling* arms to a friendly or neutral foreign country. In favor of selling arms: 53 percent. Opposed: 31 percent. It depends: 12 percent. No opinion: 4 percent.

WHAT LTV BELIEVES

Speaking for LTV,
Paul Thayer
Chairman of the Board and Chief Executive Officer

LTV supports President Reagan's proposal that America restore its own military capability.

At LTV, we believe it is our responsibility to help focus attention on issues that are critical to our country and our corporation.

Here, we have tried to present a *balanced* view of America's defense responsibilities. We're particularly grateful to the Egyptian Embassy for helping us arrange for President Sadat to appear in our Forum. We also want to thank Dr. Chomsky.

In a report to Congress last year, the Defense Department estimated that the Soviets had spent a total of *350 billion dollars more* on defense during the 1970's than we did. Last year, the Soviets devoted 12 percent of their GNP to defense—compared to our allocation of 5 percent. The Soviets have 3.5 million people in uniform compared to our 2 million. They enjoy a 2-to-1 advantage in tactical combat aircraft: a 3-to-1 advantage in tanks and armored vehicles; and a 4-to-1 superiority in attack submarines. *How should we assess this?*

Secretary of Defense Caspar Weinberger said, "It is neither reasonable nor prudent to view the Soviet military buildup as defensive in nature. It would be dangerously naïve to expect the Soviet Union—if it once achieves clear military superiority—not to try to exploit their military capability even more fully than they are now doing."

LTV believes we must honor our defense commitments. But to do so we must operate from a position of strength. In terms of real dollars, we are spending on defense today roughly what we were spending after the Korean War. As a percent of GNP our defense outlay today is substantially less than it was in the early 1960's. President Reagan is redressing this dangerous trend. We support him in this effort. An effort aimed at improving our defenses, while still seeking to avoid an uncontrollable and unaffordable arms race.

In the final analysis increased defense spending will not make us more secure. Defense dollars must be spent wisely. We cannot afford a huge arsenal of weapons at the cost of a sick economy. Again, we feel the President is on the right track. His program to revive our economic strength, and the spirit of America, is every bit as vital to world security as the effort to strengthen our military posture.

LTV—through its subsidiary, Vought Corporation—has contributed to serving the free world's defense needs since World War I. We are dedicated to providing superior aircraft, missiles and technology at the lowest possible cost. The defense business is not always a popular one. When the issues are clearly defined, however, we think most people see it to be a necessary one.

Defense technology is only one part of LTV's business, but one we take pride in as an instrument through which we help the nation meet its commitments in the continuing struggle for freedom.

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In Irish County Mayo, children load donkey cart with turf, in age-old way, for their family's winter fuel.

By Robert E. Sullivan

Old World may teach the New an energy lesson

For centuries, Ireland harvested its peat for fuel; now America is looking—with caution—at its own enormous resources

Three Donegal farmers, in assembly-line fashion, cut and toss sods to barrow to be wheeled off to dry.

On Thursdays my wife cooks about 20 meals for the local old-folks association on our turf stove. The same fire needed to prepare two gallons of soup, 14 pounds of potatoes on the hob, and four or five chickens in the oven, also boils the water in our heating and hot-water system and rattles pipes throughout the house. We have to run to turn on the hot-water taps to keep the pipes from vibrating themselves to pieces, and we still have about 30 gallons of scalding hot water in the storage tank. On Thursdays we take baths, need them or not.

The pipes rattle because the turf in the firebox heats a wraparound boiler which, by convection, feeds the hot-water system and the room radiators throughout the house. It is a very simple and almost universal system in our part of rural Ireland because, by and large, the turf is there for the taking, as it has been in Europe and North America for thousands of years.

Europeans have been using peat for fuel for centuries. Pliny the Elder found a Germanic tribe near present-day Oldenburg who collected soil "with their hands", dried it in the wind or sun and by burning it

Turning to peat bogs for energy

This special spade, a *sleán*, allows Irish harvester to dig out a complete sod each time he cuts turf.

cooked their food. But until recently the United States has generally ignored its peat energy resources, which are enormous—estimated to be far greater than its oil reserves.

Now, however, more than a dozen private companies and a dozen state and federal agencies are investing time and money into what looks like a real possibility that the United States might begin to tap this little-used energy source. But peat is found largely in the country's diminishing wetlands, and the wetlands must be disturbed to get the energy it provides. So there is potential for an environmental battle. "We're nervous about trying new things with wetlands for energy purposes without proper research," says Dr. Jan Beyea of the National Audubon Society. "There just isn't enough experience with these wetland systems to guarantee that serious damage wouldn't be done." Certainly, the prospects for successful commercialization are uncertain and will be influenced by many factors.

Some U.S. scientists are developing technology to make energy available to Americans at the touch of an electric switch or the turn of a gas knob. The Minnesota Gas Company, for instance, wants to gasify millions of tons of raw peat—using a system similar to

Peat-burning power station (above) is among seven that supply about 16 percent of Ireland's electricity.

Milled peat harvester lifts dried turf from bog surface, stockpiles it for power and briquette plants.

the one that gets gas from coal—and distribute the substitute natural gas product to its regular customers. First Colony Farms in eastern North Carolina has the ability to supply more than 100,000 acres of peat to power an electricity grid, much the way it is done in Ireland and the Soviet Union. But the long-term future of these projects remains cloudy—requiring perhaps ten years of development.

Other energy-from-peat projects are under study or in preliminary stages from Alaska and Quebec to Florida and from Washington to Maine.

The gasification of peat, or turf as it is called in Ireland, has had some precedent in Europe, but the modern techniques of peat conversion and utilization are still in the experimental stage in America, and they receive most of the attention of the U.S. Department of Energy (DOE) $13-million peat research budget for 1981. The direct burning of turf for power is well-known, having been done in Germany, Denmark, Poland, Finland, Ireland and the Soviet Union. But only in the latter three countries are large-scale programs active today.

Giant machines harvest peat in Ireland and feed it to seven electricity generators that produce about 16 percent of the country's power. The Irish turf industry not only saves the nation millions of dollars in imported oil expenditures, but also keeps about 5,500 energy jobs at home, an important factor in a country with chronic unemployment.

All peat, sometimes called young coal, is formed by vegetation, water and time. Most of the bogs in the world today were started after the second glacial period, when receding glacial masses left ponds and lakes in basins where drainage points were blocked. During countless seasons vegetation growing in and around these lakes thrived and died, gradually clogging them and forming them into reed swamps and fenlands. Normally dead vegetation rapidly decomposes and provides nutrition for its successors. But if the dead vegetation falls into water, decomposition is greatly retarded by the absence of air. The slowly decomposing heather, reeds, rushes, mosses and other bog flora gradually darken under the water, slowly disintegrate and become dense.

According to John Cooke of Ireland's Bord na Móna (turf board), in reference to one of its most pro-

The author, a native New Yorker and a former UPI correspondent, now writes and farms in County Kerry where he lives with his wife and daughter.

Turning to peat bogs for energy

ductive bogs: "As long as the bog remained untouched it was in fact a lake in which the water defied the force of gravity since virgin bog contains upwards of 95 percent water or, conversely, freshly dug raw peat contains fewer solids than are to be found in milk."

The bottom of the bog may be as much as 40 feet down in Ireland, and up to 10,000 years old; the top, may be as young as last year's dead bog weeds and this year's growth.

Along with most people in rural Ireland, I cut and dry peat pretty much the way my Celtic forefathers did. I now use a special spade, called a *sleán* (p. 148), instead of my hands, but I dry the peat the same way—or try to. Last year's drying attempt failed and I had to buy fuel from neighbors who were more skillful.

Typical of the thousands of family bogs throughout Ireland, ours consists of a sheer bank about 30 yards long and as straight as any unassisted human hand can make it, with the side or bank stretching down about six feet on a cliff angle as near perpendicular as centuries of Celtic practice can make it. It appears as though some heavenly sawbones had taken a six-foot deep, 30-yard long slice out of the bog.

John J. O'Connor, the 76-year-old retired farmer who sold us our land and who was responsible for the clean-cut lines of our bogs, brings along a string and two sticks (he calls them *cipíns*) when we first go down to the bog in the spring for my annual turf-cutting lessons. At one end he measures in from the bank face three lengths of his black Wellington boots and marks the spot with one of his *cipíns*. He repeats the process on the other end and ties the string between the two sticks. That line forms the width of this year's cut and we set about skimming off the top two or three inches with spades and sometimes with an old hay knife, and throwing the excess peat and growth into the water at the bottom of the bog face. I then stand on the skimmed area and begin cutting sods with downward thrusts of a *sleán*, which has a side or "wing" on it to help form brick-shaped sods when digging. I dump the wet, dripping sods near John who, with a pike, throws them to any available high ground where the sun and wind can start drying them. The wet peat is soft and, with a sharp *sleán*, the digging feels like cutting a giant custard.

About a week or two after we've finished cutting the bank we may return, depending upon the weather and the dryness of the cut turf, to "foot" the sods, *i.e.*, stand them on their ends leaning against one another in small groups so they'll catch more breeze. And sometime before the summer is over we'll stack the sods in ricks or clamps, and try to figure out how best to get them home—by donkey, tractor or on our backs.

But meanwhile we keep cutting or "winning" turf, as they say in Ireland. John, when it is his turn and I'm on the pike, has the slow, steady rhythm of a ship's piston and works with his eyes almost shut. And I, all bright-eyed and jerky, look for the perfectly preserved and probably prehistoric bog oak roots that fascinate me and burn brightly, and hope with every cut that I'll run into a pot of Celtic gold or a Viking sword that the air-tight bog may have preserved in mint condition.

Under the turf—a prehistoric landscape

A large part of Ireland's archaeological discoveries have been found in bogs. Bord na Móna diggers frequently discover animal bones, human remains, tools, seeds, arrowheads and other items that are turned over to the National Museum of Ireland.

Michael Ryan of the National Museum says that because of excavations at Lough Boora bog in the midlands, "our earliest Stone Age sites are now known to be sufficiently old to have predated the major periods of bog growth. Under the great turf bogs, therefore, a prehistoric landscape is sealed—a landscape probably of small gravel hills, lakes and streams, at one stage heavily wooded; over it roamed red deer, wild pig, wolf and other animals; wild fowl abounded and, as the Boora excavations now show us, Man too shared this territory."

Bord na Móna uses two basic types of equipment to harvest fuel peat on its 200,000 acres of bog: milling machines that reduce the surface to fine peat powder and digging machines that produce sods much the same size and shape as my old *sleán* does.

The 43 bright yellow diggers are gigantic, continuous bucket excavators that spread their 45 tons on tracks over the bog surface at only about two pounds per square inch. They have to travel light since the bogs are still more than 90 percent water by the time the peat diggers are called in, despite as much as some

four or five years of draining by the Bord na Móna.

The digger also macerates the peat, chops it into sods and puts it on the ground to dry. Bord na Móna-designed machines "foot," windrow and collect the sods for loading onto narrow-gauged railroad cars or for stockpiling under plastic sheets.

In the milling operation, half-track tractors, pulling large drums over drained and skimmed fields, cut the surface with thousands of steel spikes, leaving a loosened layer about a half-inch deep. One good day's sun will dry the peat enough for another tractor to come by with a harrow to turn the particles for another day in the sun.

The process continues until the moisture content is down to about 50 percent, when the peat is taken off the fields for delivery to power stations or briquette factories. In a good year, the milling drums may roll over each prepared area as many as 16 times, taking up to eight inches of the bog surface. (Peat moss for horticulture use, accounting for $15 million in exports last year, is harvested with a modified digger.)

There is a lot more peat than oil

It is easy enough to conceive of similar commercial-sized operations in the United States, which, according to the DOE, has the second-largest peat resource in the world. After coal, peat is the country's largest fossil-fuel deposit. There is a lot more peat than oil, and Americans are not going to use traditional *sleáns* and pikes to turn it into energy. The 50 states have a total of about 52.6 million acres of peat, compared with the Soviet Union's 228 million acres. The largest American resources are in Alaska, Minnesota, Wisconsin and Michigan, and on the Southeastern coast and the Gulf Coast. With the exception of Alaska the peat is generally found where other fossil fuels are lacking.

Dr. Melvyn J. Kopstein, manager of the U.S. Department of Energy peat program, says that America's estimated 1,443 quadrillion Btus of peat energy "are greater than America's oil, conventional gas and lignite reserves combined."

Putting aside any likelihood of arming a few million Americans with *sleáns* and pikes, there are several major energy uses of peat now under active consideration by DOE and private industry.

It can be dried and burned in power stations as it is in the Soviet Union, Finland and Ireland. This is one of the methods proposed for the more than 100,000 acres of peat that First Colony Farms has in eastern North Carolina. The company has already tested Finnish and Soviet bog-preparation and harvesting equipment, and has begun selling its resultant 17,000-ton stockpile to local firms, including brickworks and textile mills. One of First Colony's future markets may be

At N.C. First Colony Farms, a modified Finnish miller chews up the top layer of peat for harvesting.

First Colony Farms' president, Hobart G. Truesdell, displays briquettes from his 100,000-acre peat deposits.

the North Carolina Electrical Membership Corporation, a utility cooperative, which is studying the possibility of putting up a 50-megawatt peat-firing generating station. First Colony is also interested in a plant that is being designed to convert its peat to fuel-grade methanol.

Another potential use of peat in America is gasification. Much of the research on this process has been supported by the Minnesota Gas Company (Minnegasco), DOE and others. Minnegasco is looking for alternative gas sources for its 600,000 customers in Minnesota, Nebraska and North Dakota. Some companies believe that synthetic natural gas made from peat may be competitive with that from coal.

Minnegasco has a $3.6 million grant from the DOE to study the technical, economic and environmental feasibility of converting peat to synthetic gas, and it has applied for a lease on 200,000 acres of Minnesota peat land for the project. So far the plans are tentative, however—the technology is still being tested and no land leases have been issued yet to this company.

Careful research, being conducted under a $4-million appropriation voted by the Minnesota legislature, may make this state a model for others to follow. Having the most extensive peat lands of any state other than Alaska, Minnesota has chosen to study every aspect of this type of mining. The state is progressing with its inventory to determine the extent and thickness of the peat in order to assess the total amount. It has sponsored research on the ecology and hydrology as well as the economic impact of large- and small-scale operations. It is starting with the idea of leasing small areas for horticulture mining before making a decision on whether or not to permit large-scale mining.

Herbert Wright, a geologist at the University of Minnesota and a member of a peat study group funded by the National Science Foundation, thinks the public interest in the subject of peat mining is "considerable". He summed up his reactions this way: "I feel positive about the approach the state has taken. By authorizing and financing these studies, it has done the proper thing. There are a lot of people opposed to large-scale peat mining on general principles and, on the other side, there are those who want to develop. Then, there's a whole middle group who wish to weigh the consequences. Even though everyone doesn't agree, there's an active dialogue among all the people."

In other areas, research is being done on how to turn turf into "peat coal," a high-energy product that looks almost like coal. The process, called wet carbonization, is marketed by the Wheelabrator-Frye Corporation in New Hampshire and could utilize part of Maine's 770,000 acres of peat.

Wetlands will be irrevocably altered

Whatever its promise as an energy source, peat mining could be an environmentalist's nightmare. No matter which method is used, the wetland mined will be irrevocably altered. Proponents of mining claim that after 20 to 40 years of mining, when all the peat is harvested, some areas, in time, could be turned into scenic recreation lakes, productive soybean or potato fields, meadows for cattle, or even wildlife preserves. But they never again will be the wetlands they were before.

The wetland destruction in the mined area alone would be a "significant loss considering the country's diminishing wetlands," according to a staff ecologist at the Environmental Protection Agency. Conservationists are worried also about the impact the mining would have on surrounding areas.

While I skim off only the top few inches of my bog before I begin cutting my small bank, some of the commercial companies would have to skim 15,000 to 30,000 acres at a time. Some of the wetland fauna could

EARLY TIMES.
THE WAY IT WAS, IS THE WAY IT IS.

1871. A hastily arranged reception for a pioneer balloonist.

On July 4, 1871, an astonished crowd in Kalamazoo, Michigan beheld a lone balloonist descend from the sky. He was Professor Steiner, the first mortal to fly across Lake Michigan. And even then, what would have been more appropriate at a welcoming party than Early Times. The whisky that made Kentucky whisky famous.

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1860 TODAY

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move, but their delicate food chains would be destroyed or greatly diminished. Since wetlands serve as breeding and feeding areas for many migrant species, the effect on the fauna would be far wider than the immediate area of harvesting. Many scientists have an even greater concern: the uncertainty of how peat mining would affect water.

Every spring I kick open a small drain at the lower end of my bog that empties into a stream. The acidic brown bog water mixes with the clear mountain water and in a few minutes disappears, probably not damaging much of anything.

On the other hand, large-scale peat mining could seriously affect water quality for miles around, according to specialists. It could change water levels, seriously affecting the surrounding wetlands and all the fauna and flora that depend on current levels and balances.

For its heat value, peat is bulky. Anyone who has carried a year's supply of peat, stuffed into feed bags, out of a wet bog can tell you that. I have done it, and I remember thinking it might have been easier to move the hearth and home instead of the turf. It is not economical for large-scale commercial operations to move peat over long distances, so it seems logical that the processing plants would have to be built near or in the wetlands.

Although surface destruction is likely to be less obvious to the naked eye in wetlands mined by dredging, the danger to the surrounding water may be just as real. And lakes created by dredging—if the peat banks hold, which a Minnesota researcher says is far from sure—could be scenic. But every site would require thorough research and specific, individual reclamation efforts.

One of the perquisites of being president of First Colony Farms is that you get to take home your own turf. The president, Hobart Truesdell (p. 152), nips down to the company's 17,000-ton stockpile every now and then to grab a bag or two of turf sods which he throws on the home-fire grate. Last Christmas he gave his friends turf sods stuffed into old oyster sacks. "They were disappointed," he said. "They thought there were oysters inside."

Truesdell doesn't know how lucky he is. He can go down to an uncovered "rick" of peat, accumulated during an eight-month harvesting season. Rainy Ireland's Bord na Móna has five harvesting months at most and must cover its stockpiles with plastic sheets to keep them from becoming soaked again.

At my bog, the rain for the past three summers has been so bad that the horse and the donkey have balked at crossing the usually overflowing streams into the wet bog. The day I made a mad dash to the bog with the tractor and transport box for a daring raid and a quick load of turf, I discovered the real meaning of the phrase "bogged down." I thought the red tractor and the blue transport box were going to remain down there forever as a monument to my own folly.

The first year I couldn't dry the turf properly and bought it at £35 ($52) a tractor load from a more skillful neighbor—and that was £105 ($157) for the year's cooking and heating fuel. The second year I carried out every last bag on my back. Last summer I ricked the wet sods down near the bog bank, cut some forestry wood and bought coal, waiting and hoping for a better summer.

American peat exploitation, if it pans out, will be big business. Per plant costs range from the $300 million estimate for the methanol plant at First Colony Farms to the multibillion-dollar investment for commercial-scale gasification plants, which may operate from 20 to 40 years.

John O'Connor and I reckoned not long ago that if the projects were given the go-ahead today, what with draining and everything, they'd last well into the next century. By that time, we figure, we are going to need a new *sleán*.

A new *sleán*, costing £10 (about $15) now undoubtedly will be more expensive then, and the government or my offspring will have to buy it for us since I'll be retired. But it is comforting to know (I get downright smug as our radio reports each new oil price rise) that our small Irish bog alone can provide enough fuel to keep warm any of our offspring and the offsprings' offspring, and theirs too, even if every mother's daughter and son of them cooks for the old-folks home every single Thursday.

A peat bog in Andover, Massachusetts, typifies a natural resource environmentalists fear may be lost.

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Pleito Ranch is just one example of Tenneco's efforts to increase the nation's energy reserves. We're a leading natural gas producer in the Gulf of Mexico, one of our nation's most important energy areas. Tenneco discovered oil and natural gas in the Baltimore Canyon off New Jersey in an area still being evaluated. And we're preparing to explore leases in the Georges Bank off New England and in the Beaufort Sea off Alaska.

Onshore, we've made significant discoveries in the Williston Basin of the Dakotas and Montana, in the San Juan Basin of New Mexico, and in areas in the San Joaquin Valley other than Pleito Ranch.

All this takes a lot of money. This year alone we'll invest some $1.7 billion in energy projects, most of it in the United States.

Although energy contributes more than three-fourths of Tenneco's income, we continue to provide other basic needs, like food, construction and farm equipment, chemicals, ships, automotive components, packaging, and insurance.

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For more information about Tenneco, write Dept. S-4, Tenneco Inc., P.O. Box 2511, Houston, TX 77001.

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OSHKOSH

By Enid and Tom Farmer

A Boston museum where children can cavort at will

Although their yells may be deafening and their attention spans are short, the young clients learn at every turn

Michael Spock, museum director, at Grandparents' House bedroom, part of the cutaway "City Slice."

In the waning years of the 19th century, the wharf at the juncture of Boston's historic Congress Street and the harbor pulsed with life. Tall-masted clipper ships and packet boats tied up alongside hulking warehouses, bringing wool and prosperity to the bustling waterfront. The clippers and packets vanished, and Boston's wharves became decaying, slummy places. The clipper ships haven't returned—but, suddenly, the life has.

Nowadays, the most common vehicle unloading at the wharf is not the queenly clipper but the mustard-yellow schoolbus. Throngs of youngsters charge across a friendly, granite-paved plaza with a new name—Museum Wharf—and into an 1888 wool warehouse with a new tenant: the Boston Children's Museum. Where bales of dry goods once awaited shipment up and down the New England coastline and around the world, children now clamber across a gigantic desktop littered with five-foot pencils and two-foot paper clips; march into a three-story house sliced open to expose the plumbing, studs and gas lines; anchor a television news broadcast; take their shoes off and enter an authentic Japanese house and shop complete with kitchen, bathroom and garden; experiment with prostheses, wheelchairs and Braille typewriters; run a supermarket's checkout counter, and much more. A child's dream come true? Children seem to think so.

There are few passive experiences here. Pre-teens accustomed to constant warnings of "Don't touch!" and "Be careful!" are encouraged to climb, grab, feel, operate, push, pull and explore. Nearly every attraction is "hands-on."

"Ten years ago, we spent a lot of time worrying about whether we were a real museum or not," muses Michael Spock (son of Dr. Benjamin Spock), the ebullient 47-year-old museum director, "because the national 'rep' we have is that it's just a place to come and have fun. But we're museumlike in the sense that we have objects and collections that we curate and conserve. We're fully accredited."

Spock has been the chief overseer of museum operations since 1962, when it occupied cramped, inaccessible quarters in Jamaica Plain, a southwest Boston neighborhood. (Established there in 1913, the Children's Museum is the second oldest such institution in the United States.) In 1975 it joined with Boston's Museum of Transportation to buy an abandoned wool warehouse on the waterfront, built in 1888 by the Atlas Terminal Stores Company. Planning, renovation, design and construction of new exhibits took four years, and in July of 1979 Spock presided over the museum's move to its new harborside plant. Today it is a stone's throw from ample parking lots, a subway line and the busy banking district—and the Boston Tea Party ship and museum is only 100 yards away.

At "soap film window," a visitor pulls up "shade," blows giant bubble through soapy sheet it raises.

Photographs by Richard Howard

Boston Children's Museum

Museum Wharf is the latest and one of the highest-profile elements in Boston's ambitious waterfront redevelopment plan and is within walking distance of another: the Faneuil Hall Marketplace. As perhaps the best proof that the project has a bright future, a McDonald's hamburger stand has also taken space in the warehouse.

The museum's philosophy is as unconventional and intriguing as its physical location. "The thing that I think makes us really different," says Spock, "is that all of the other museums you hear about—art museums, science museums, history museums—are all *subject matter* museums. They're about some area or areas of knowledge or information. On the other hand, we're a *children's* museum, which means not that we're about children—although some of our programs look at childhood, early child development, growing up in other cultures, things like that—but that we're a client center. And so we are *for* somebody instead of *about* something."

All that the museum's younger constituency does is enjoy itself. Tuesday through Friday, at 9:30 A.M., school buses crammed with anticipatory children roll in from all over Massachusetts, Rhode Island and southern New Hampshire; so popular a school attraction is it that the museum's school-group reservation book, open the day after Labor Day, fills up for the entire year in 48 hours.

Most of the children are in the first-through-fourth-grade range. Elaine Heumann Gurian, director of the Exhibits Center, insists that the exhibits are not aimed at any particular "target group," and that the place is equally appropriate for much older kids. "If you close this museum down and let teen-agers in, so there are no babies to be seen, a whale of a good time happens and you can't get them out of here. So we know that the place works perfectly well with every age group."

In the "Congress Street Superette" a guest rings up purchases of make-believe foods under watchful

Getting the "feel" of being unsighted, blindfolded girl explores the "What If You Couldn't?" maze.

eye of a self-appointed "manager." The Museum likes to emphasize such role-playing in its exhibits.

At "We're Still Here" display, children rush out of Wampanoag cedar-pole wigwam covered with mats.

(The museum can be—and has been—rented to special groups for parties.)

Clamoring to be let loose, kids surge through the gates into the museum, so excited that it may take them a minute or two to realize that "Hey! We're standing on a giant desk pad!" So they are, complete with a head-high coffee cup, pennies the size of pizzas and a Trimline telephone as big as a dinghy. "That telephone's too big," sighs one nine-year-old. "I can't fit *that* in my ear." Nearby is a kid-size car standing near an entirely real gasoline pump. The car is an obvious facsimile, but its demon-driver operators take the gas pump quite seriously, stopping every minute or so to warn each other, "Stop! We don't have any gas left!" In the same room is the Castle, a playspace intended for toddler-age children—a labyrinthine maze of slides, tunnels, ladders and towers, all much too small for an adult to negotiate.

And beyond that is a three-story extravaganza, the centerpiece of what Michael Spock calls the "City Slice" side of the Museum: a turn-of-the-century mansard-roofed house, built within the warehouse, stretching up from second to fourth floor. This "Grandparents' House" has an exposed-stone cellar, a living room filled with old knickknacks, a kitchen and a gabled attic. It is carved open in varying degrees to permit inspection of the interior from without. The clapboard is cut away, then the studs, the laths and plaster, then the interior woodwork. Visitors can hang from a stairwell and peer through the walls into a small bedroom sliced neatly down the middle—with half a bed, half a box spring and half a blanket—or half a bathroom. Or they can look straight down through an open manhole and see gas mains and sewer pipes—all the veins and arteries that throb beneath a city street—and half a fire hydrant standing on half a sidewalk.

The City Slice project—home, street and manholes—is the ultimate indulgence of a lifelong obsession of Spock's; from childhood, he has nursed an ill-checked curiosity about how things look inside. One of his first Children's Museum exhibits, years ago, was a series of common household items, toasters and washing machines among them, cut neatly in half and mounted for inspection.

Within Grandmother's attic, visitors can sit for a minute and listen to interpreters explain various household items of previous generations. Those so inclined can also paw through steamer trunks full of interesting vintage clothes and dress up like miniature supporting characters from Fitzgerald novels. The in-

Enid Farmer is a free-lancer living in Lexington, Massachusetts. Her son, Tom Farmer, is a news reporter for WCAX-TV in Burlington, Vermont.

A child learns to use an old-fashioned pump drill; the twine revolves the disc and its nail drill bit.

Guided by an older boy, a tot takes driving lesson in a pretend version of an old roadster.

terpreter discusses some of Grandmother's implements with an attentive group of inner-city kids, then asks them what they have in their attics. "Rats!" comes the uniform answer.

Elsewhere, children may shop in a grocery store, enter a health clinic to examine X-rays for fractured tibias or search through a dentist's cabinet and sit in an examination chair. Nearby stands a room devoted to the Northeast American Indian which features on one side a full-scale Wampanoag wigwam, big enough for eight or ten children, and on the other a modest clapboard house illustrating the modern Native American life-style. As a puncturer of stereotypes, it is powerful: samples of traditional Indian food are laid out for examination in the modern house, including corn, oysters and cranberries—edibles a young visitor is probably familiar with, but might not connect with Native Americans. Life-size drawings of modern Native American youngsters depict them not in animal skins and war paint, but in blue jeans and sneakers. The room is called "We're Still Here."

Another exhibit that helps to allay mysteries, fears and preconceptions about other people is in the next room. It's called "What If You Couldn't?" and "from the public standpoint," says Elaine Gurian, "it is clearly the most important exhibit that we've done." Its aim is to plant within young minds the need for an empathy with handicapped people by demonstrating what various handicaps are like. Children can climb into a wheelchair and try maneuvering it through gravel, pulling themselves up a slight incline, and then try to use a standard telephone booth—an infuriating impossibility, thanks to its design.

A short distance away, a determined youngster is carefully typing his name and address on a Braille typewriter. "I can barely feel anything," he complains, trying to read it with his fingertips. Finally he succeeds. "I typed Derek Murman!" he crows. Just beyond, other young people, blindfolded and swinging white canes back and forth, are learning the frustrations of blindness firsthand as they make their way through a maze of multitextured walls. "That felt weird," reports one, grateful to be hanging up his cane. Another child tours the maze again, this time with her eyes open, pointing: "I felt that gate! I felt those rocks! I bumped into that wall!" Interpreters can fit the children with artificial arms or metal crutches and can show them pictures of other people

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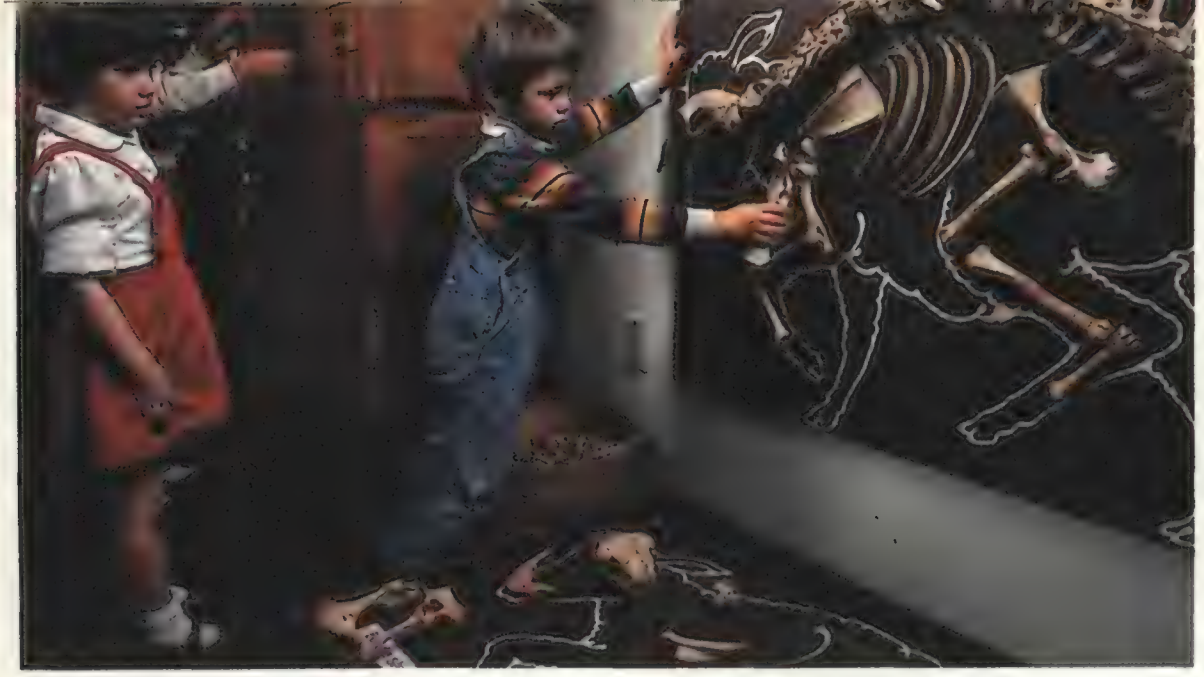
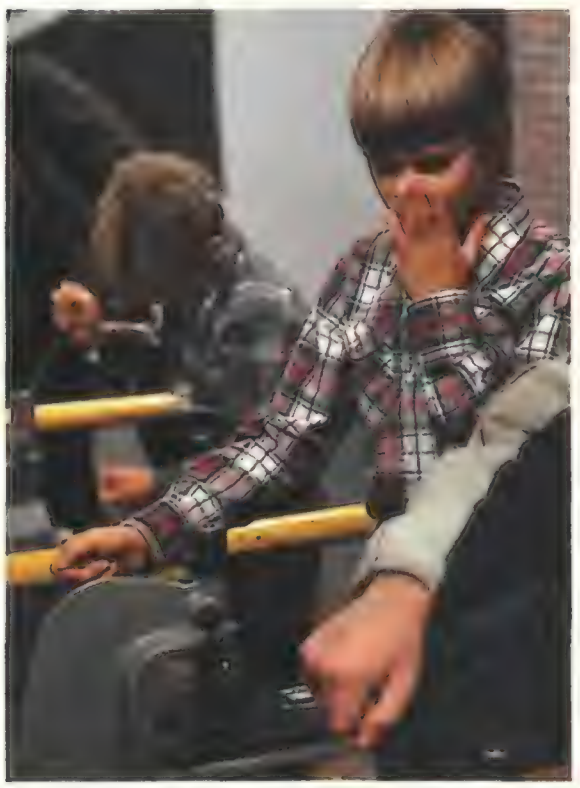


This is "Build a Sheep," where child tries to fill in skeleton from a basket of bones.

A little girl crawls over phone buttons on the "Giant's Desktop."

A boy climbs out of a manhole, below which sewer pipe joins Grandparents' House catch basin.



On "Spree Spinner" assembly line boys make (and get to keep) tops.

using prostheses. Even if experimenting children take off their blindfolds or plastic limbs after only a few minutes' time, they gain an understanding of, and compassion for, people who face these hurdles as part of everyday life. And the parents experience "What If You Couldn't?" with just as much interest as do their children.

Down the hall from the wheelchairs and canes sits the 150-year-old Japanese artisan's house and shop, disassembled in Kyoto and shipped to Boston to be rebuilt by Kyoto craftsmen imported especially for the task. It fronts on an authentic Japanese street complete with real *degoshi*, or recessed latticed windows. Donated by a 14th-generation silk-weaving family and the people of Kyoto, it offers a tour through one of the few pieces of Japanese residential architecture on permanent exhibit in the United States.

Upstairs in the museum are two Digital PDP-11 computers, linked up to a roomful of indestructible video terminals. Next to the computer complex, a team of youngsters is producing the evening news on WKID-TV. One child aims a video camera as three others, sitting behind the yellow anchor desk, announce the news, sports and weather from cue cards with more verve than many professionals. Facing the desk, directly below the camera, is a monitor on which they can see how they look on television.

There is much more. Children are hardly famous for their attention spans, and they don't linger long in any one spot. As excited school groups overrun the premises, the noise level is predictably deafening. The frenetic pace, and every individual exhibit, is tilted toward what Spock calls "landmark learning." The notion is that not every Children's Museum patron is

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Helped by parents, children in "Grandmother's Attic" dress up in the old clothes kept in steamer trunks.

going to have the patience and temperament for his or her life to be affected by every exhibit—but perhaps some particular exhibit will touch each life in some way. If it does, that experience may become a "landmark" in the visitor's educational resumé, and so all are encouraged to run around searching for the attractions that suit them best and might prove most valuable in later life.

The "Hall of Toys"—which is bypassed by many children—is the only "conventional" exhibit. Here is a room full of dolls and dollhouses, toy soldiers and, currently, a 100-year retrospective of Parker Brothers (of Salem, Massachusetts) board games—all in glass cases. The room is quieter than others, the lighting is softer, nor are there any bells to ring or ladders for children to climb.

The Children's Museum is not simply a place to haul the kids off to on a rainy Sunday afternoon, but more an aid to growth, a series of compact courses on modern anthropology. "Schools used to be a preparation for life, and life was simpler, so you could acquire all the skills you needed to go out and be a doctor, or mechanic, or whatever," says Spock. "Now, it's clear that the world changes so fast that school is only one piece of learning. The problem is that the classroom is so far removed from the world you're going on to."

Michael Spock, Elaine Gurian, and the rest of the staff of the Boston Children's Museum—salaried and volunteers, some 150 strong—have big plans for the future. They want to establish strong ties with their new waterfront. They are building a consultant relationship with other institutions: they have had many requests to help establish other children's museums and train other museum professionals, nationally and internationally. They are changing the meaning of the word "museum" for thousands of children who have never been urged to climb, crawl, stomp and roughhouse in pursuit of education.

Nearly half a million visitors will course through the place this year, many of the younger ones never suspecting the future significance of the truths they acquire, almost by osmosis, amid all the fun and games. It is, most definitely, a place for all who daydreamed during interminable school sessions, for whom fractions, irregular verbs and biological phyla melted from the consciousness like ice cubes in the warm afternoon sun. The Children's Museum is trying to be much more vital than the classroom, to be the stuff of life itself. Says Spock: "It's a place where children can learn to manage the world."

Every object including the paper clip is outsized, but not the kids, at museum's fanciful Desktop.

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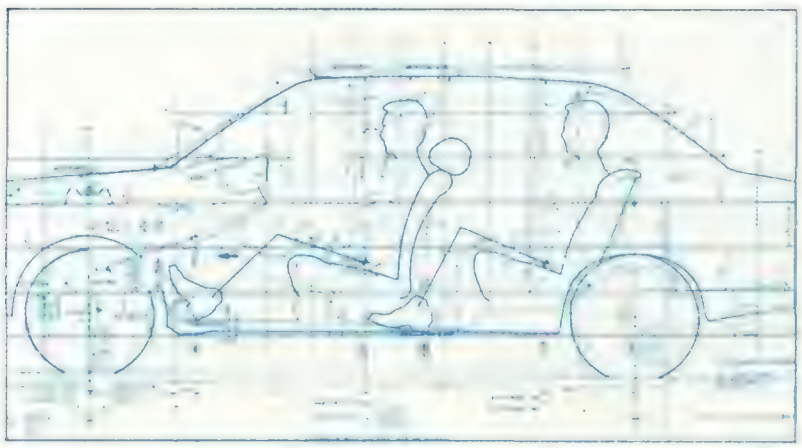

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By Robert K. Massie

The court of the Windsors

Among the few remaining royal families, Britain's has been notable for its strong sense of duty and its adaptation to change

Monarchy, in these waning years of the 20th century, counts for little politically. Indeed there are not many monarchs left. There are no kings or queens at all in North or South America, excepting the curious arrangement by which Canadians swear fealty to the British crown. Three kings (of Morocco, Lesotho and Swaziland) survive in Africa, and only eight monarchs are to be found scattered through the rest of that vast region of palm and pine from the Mediterranean to the Pacific (the Kings of Jordan, Saudi Arabia, Nepal, Bhutan, Tonga and Thailand, and the Sultan of Malaysia and the Emperor of Japan). All the rest of the world's sceptered monarchs reside in Western Europe, and their kingdoms, ironically, are among the most advanced, industrialized democracies on Earth. In this little corner of the planet, the number of ranking crowned heads seems to have stabilized at seven: those of Great Britain, Holland, Belgium, Norway, Denmark, Sweden and Spain.

The population of sitting monarchs may never grow again, but by the same token, it seems unlikely to dwindle rapidly. Those nations that have kept their kings so far, through all the tumultuous upheaval of our century, seem comfortable with the arrangement and likely to retain it for a while. The reason, generally, is that the modern monarch reigns but does not rule.

The royal figures of Europe belonged to an exclusive class of human beings. Most were part of a single, embracing international family (Queen Victoria called it the "royal mob") in which first cousins routinely married each other, in which kings and emperors were privately known as Bertie, Georgie, Nicky and Willy, and which referred to a little old woman in Windsor Castle as "Granny."

In royal marriages, love played a secondary role. It was most agreeable, of course, if a young man and a young woman of suitable dynastic credentials could also find themselves in love with each other. But where love failed to develop spontaneously, royal parents and their ministers took the view held by most upper-class parents of the age: suitability counted most; love —or at least amiable respect—would follow.

Royalty meant hard work. If the perpetual round of duties or the pressures became too great, there was always the possibility of abdication. Queen Victoria, battling her ministers, often threatened to take off her crown and move with her children to Australia. Two emperors, Nicholas II of Russia and Wilhelm II of Germany, eventually did choose this retreat when the tides of revolution and war swirled around their heads. And assassination was never far from the consciousness of all monarchs. Three American Presidents and a czar of Russia were murdered within 35 years, Empress Elizabeth of Austria and the heir to the Habsburg throne, Archduke Franz Ferdinand, both fell victim to assassins, a bomb was thrown at Alfonso XIII of Spain and his bride on their wedding day (both were unhurt), and seven times during her reign men approached Queen Victoria with intent to do her harm.

Most royal deaths, however, were normal in the sense that kings and queens succumbed to the same illnesses that struck down their subjects: typhoid fever, diphtheria, pneumonia, heart disease and cancer. Gathered around a deathbed, a royal family felt no

This article is adapted from Robert K. Massie's introduction to The Last Courts of Europe, *with photographs selected by Jeffrey Finestone. It is to be published this month by The Vendome Press.*

Queen Victoria, rather strangely draped in a fur robe and gowned in elaborate black silk.

On her head is the little ruched white cap that she habitually wore indoors in later life.

Startled, she turned to her governess and said: 'I am nearer to the throne than I thought'

concern for titles or rank. The tears were for mother, father, husband, wife, sister, brother, son or daughter.

During the latter half of the 19th century, the golden afternoon of royal majesty, the monarchs of Europe revolved in stately orbit around the indomitable figure of a woman not five feet tall, Queen Victoria of England. Her reign of 64 years was a time of unprecedented peace. While she lived, the Queen brought stability and prestige to the crown of England and to all the thrones of Europe. Once she was gone, Armageddon descended and three empires, many kingdoms and the old system of world order were swept away.

To measure Victoria's achievement properly, one must recall not only what she left at the end of her long reign but also what she had inherited at its beginning. In 1837, when the 18-year-old royal heiress mounted the throne, the British monarchy, dating back to 828 with the Saxon ruler Egbert of Wessex, had teetered and tottered into a state of laughable helplessness. The Queen's immediate predecessors on the throne, her grandfather King George III and her uncles George IV and William IV, have been ungently but not inaccurately described by Sir Sidney Lee as "an imbecile, a profligate and a buffoon."

Victoria's own father, Edward Duke of Kent, fourth son of George III, was no more promising. Retired early from the army because his taste for harsh discipline had caused a mutiny at Gibraltar, permanently in debt, a bachelor at 48, he lived abroad with his mistress of 28 years, a French woman named Madame de Saint-Laurent. In 1818, however, inspired by an offer of increased Parliamentary subsidy if he would marry, he ushered Madame de Saint-Laurent to the door and married a 32-year-old widow, Princess Victoria of Leiningen. Ten months later, on May 24, 1819, a daughter was born. Eight months after that, the Duke of Kent, having made his contribution to the history of England, died of pneumonia.

The little Princess lived with her mother in Kensington Palace, whence she journeyed from time to time to visit King George IV. Early, she knew how to please. Climbing into the lap of the gouty, bewigged old monarch, she would give him a beguiling smile and plant a whispery kiss on his dry, rouged cheek. "What would you like the band to play next?" the charmed old gentleman once asked. "Oh, Uncle King, I should like them to play *God Save the King*," piped the child.

Regal manners at an early age

She understood that she was different from other children. "You must not touch those, they are mine," she announced to a visiting child who was about to play with her toys. "And I may call you Jane, but you must not call me Victoria," she added for emphasis. An exasperated music teacher once presumed to lecture: "There is no royal road to music, Princess. You must practice like everybody else." Abruptly, Victoria closed the piano lid over the keys. "There! You see there is no *must* about it!" When she was ten, she discovered and began to study a book of genealogical tables of the kings and queens of England. Startled, she turned to her governess and said: "I am nearer to the throne than I thought." As the governess nodded, Victoria's eyes filled with tears. Then, solemnly, she raised her right forefinger and made the famous declaration: "I will be good."

In 1830, when Victoria was 11, the death of "Uncle King" brought the Princess even closer to the throne. The new King, her 65-year-old Uncle William, had sired ten children, all illegitimate; Victoria, accordingly, was heir to the crown. William reigned for seven years, but at five in the morning of June 20, 1837, a group of gentlemen arrived at Kensington Palace, having come directly from Windsor where the King had just died. A sleepy young woman in a dressing gown, her hair still flowing down her back, received them, while they knelt and kissed her hand. "I am very young," the new Queen wrote in her diary that day, "and perhaps in many, though not in all things, inexperienced, but I am sure that very few have more good will and more real desire to do what is fit and right than I have."

Young Victoria, brought up without a father, had no qualms about admitting that her good intentions needed the right kind of fatherly

Queen Victoria with Prince Albert in Buckingham Palace, May 1860.

guidance. One who gave advice—generally good, always good-humored—was her dandified Uncle Leopold, King of the Belgians.

A second fatherly figure was Victoria's first prime minister, handsome, graying Lord Melbourne. The world took him for a cynic, but he charmed the Queen with his sophistication, his dry wit, and his deep devotion. She proclaimed him "the best-hearted, kindest and most feeling man in the world," praise endorsed when her beloved spaniel Dash came up to lick Melbourne's hand. "All dogs like me," the Prime Minister shrugged, but the Queen would not think it so.

The choice was up to her

The vicissitudes of politics removed Lord Melbourne, but in 1839 Victoria herself chose the male counselor who was to have the greatest influence on her life. Her first cousin, young Prince Albert of Saxe-Coburg, had grown up a serious, purposeful child. Victoria met him when both were 17 (she was senior by three months, however), and both knew that their elders hoped for a match. Still, the choice was up to her. She felt almost ready to make it when she watched him climbing the stairs at Windsor in October 1839. "It was with some emotion that I beheld Albert—who is *beautiful,*" she told her diary. A few days later, the entranced young woman invited Albert to come to her private audience room. "I said to him that I thought he must be aware *why* I wished [him] to come here—and that it would make me *too happy* if he would consent to what I wished (to marry him)." Albert consented and began the difficult task of being the husband of the Queen.

Tea at Windsor Castle with Prince and Princess Henry of Battenberg and their children, 1895. Queen Victoria had several Indian attendants.

In the early months of marriage, Albert found his position awkward. Victoria adored him and had insisted that the word "obey" remain in the marriage service but, as he wrote to a friend, he remained "the husband, not the master of the house." Gradually he moved to assert domestic supremacy. His position advanced when, nine months and 11 days after the wedding, Albert became a father as well as a husband. The child was a daughter, Victoria (called Vicky in the family), rather than the hoped-for Prince of Wales, but the defect was remedied a little less than a year later when Prince Albert Edward, known as Bertie, arrived. The Queen did not enjoy pregnancy and childbirth. "What you say of the pride of giving life to an immortal soul is very fine, dear, but I own I cannot enter into that," she grumbled 18 years later when Vicky wrote rapturously about the birth of her own first child. "I think much more of our being like a cow or a dog at such moments; when our poor nature becomes so very animal & unecstatic." Nevertheless, Queen Victoria was often pregnant: nine times in all.

Albert, in addition to counseling his wife in statecraft, took primary charge of training their offspring. His best pupil was his bright, eager, adoring daughter Vicky; his most difficult was the Prince of Wales. Fortunately, Bertie proved to be enormously good-natured, and no permanent rivalry between the siblings resulted.

The example put before Bertie, in any case, was not his sister but his father. Repeatedly the Queen urged

Bertie 'is lively, quick and sharp when his mind is set on anything, which is seldom'

all her children to emulate this matchless being. "Try, all of you," she wrote to Bertie, "to follow in his footsteps and don't be discouraged, for to be *really* in everything like him, *none* of you, I am sure, will ever be. Try, therefore, to be like him in *some* points, and you will have *acquired a great deal.*"

Bertie struggled to please but often disappointed. When he was 17, the Queen wrote to Vicky, who had married Prince Friedrich of Prussia: "I feel very sad for him. He is so idle and weak." Albert, sending Bertie to visit Vicky, described his son to his daughter: "Bertie has remarkable social talent. He is lively, quick and sharp when his mind is set on anything, which is seldom. . . . But usually his intellect is of no more use than a pistol packed in the bottom of a trunk if one were attacked in the robber-infested Apennines."

At 19, the Prince of Wales began the first of four terms at Oxford, where his wan effort provoked his father to sigh: "Bertie's propensity is indescribable laziness. I never in my life met such a thorough and cunning lazybones."

Ironically, Bertie's first independent success came in North America, a substantial segment of which had declared its own independence from his great-grandfather 84 years before. In July 1860 the Prince of Wales sailed on a tour of eastern Canada and the United States. At Niagara Falls he stood on the Canadian side and saw the famous French acrobat Blondin cross from the American side on a tightrope, pushing a man in a wheelbarrow. Blondin proposed that he return with the Prince in his wheelbarrow. Bertie accepted eagerly, but his advisers intervened, and Blondin walked back across the Falls on stilts.

Queen Victoria signed state papers at Frogmore, Windsor, July 1893.

He almost fell through the floor

In the United States, after passing through Chicago, St. Louis, Cincinnati and Pittsburgh, the Prince arrived in Washington where President Buchanan greeted him at the White House and then escorted the royal party to Mount Vernon. In New York, Bertie was the guest of honor at a ball in the Academy of Music. Two thousand uninvited guests pushed their way in, with the result that, just as Bertie arrived, the floor cracked and then sagged three feet. The royal visitor went on to Boston, met Longfellow, Emerson and Oliver Wendell Holmes, and finally sailed from Portland, Maine, on October 20. Albert was proud of his son's success and wrote to Vicky: "He was immensely popular everywhere and really deserves the highest praise."

To channel this new 19-year-old maturity, the Prince's parents decided that he should be married. Vicky eagerly undertook the assignment of Continental scout. Eventually, she proposed a candidate: "She is a good deal taller than I am, has a lovely figure, but very thin, a complexion as beautiful as possible." Queen Victoria, convinced, pronounced the maiden "a pearl not to be lost."

The "pearl" was 16-year-old Princess Alexandra of Denmark, eldest daughter of Prince Christian of Schleswig-Holstein. A cousin of King Frederick VII of Denmark, Prince Christian had no money other than

A family party at Osborne House, Isle of Wight, 1898: among those present, third from left, Prince Edward (later Duke of Windsor); behind him, his mother (later Queen Mary); in the white suit, the Duke of York (later George V) clasping Prince Albert (later George VI). Queen Victoria had nine children, 44 grandchildren.

the salary he earned as an officer in the Danish Guards. Nevertheless, despite modest circumstances, he managed to bring up six children, four of whom were to sit on thrones. Princess Alexandra, with her soft brown hair and deep blue eyes, was open, passionately affectionate, sleepily disinterested in books and politics and, as pronounced by Queen Victoria after seeing a photograph, "outrageously beautiful."

Negotiations to acquire the Danish pearl commenced while the husband-to-be was dispatched to spend the summer in training camp with the Grenadier Guards. During this service a group of sporting young officers spirited a young actress named Nellie Clifden into Bertie's bed. Nellie, who had known a whole regiment of officers, could not help bragging about this particular conquest.

In September the Prince departed for Germany and, in company with Vicky, traveled incognito to meet Princess Alix "by chance" while strolling through a church. Vicky reported the results to Windsor: "Alix has made an impression on Bertie, though in his own funny and undemonstrative way. He said to me that he had never seen a young lady who pleased him so much." For the moment that was as far as the Prince was willing to go. The probable cause revealed itself in mid-November when rumors concerning Nellie Clifden, swirling through the clubs of London, reached Prince Albert's ears.

Albert traveled to Cambridge where Bertie was in residence, took a long walk with his erring son, and came home pleased by Bertie's contrition but physically exhausted. A few days later he wrote to his daughter: "I am at a very low ebb. Much worry and great sorrow (about which I beg you not to ask questions) have robbed me of sleep during the past fortnight. In this shattered state I had a heavy catarrh and for the past four days am suffering from headache and pains in my limbs which may develop into rheumatism."

In fact, the Prince had typhoid fever, the deadly killer of the 19th century that had afflicted Victoria at the age of 16, and that was to strike down many members of her family. The Queen, in disbelieving horror, sat by his bed while he struggled for breath and called out to her in German. On December 14, 1861, her beloved Albert, only 42, died. "He was my life," sobbed the Queen. Now he was gone, and the Queen convinced herself that what she called "Bertie's fall" was at least in part responsible. "Oh, that Boy," she wrote to Vicky, "much as I pity, I never can or shall look at him without a shudder."

Fortunately, Bertie had been scheduled to go on a four-month tour of Egypt, the Holy Land and Constanti-

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nople, and thus was removed from his mother's sight. The wedding plans went on, however, and in September 1862 the English Prince met Alexandra in Belgium at the palace of King Leopold. There, walking in the garden, Bertie proposed.

Alexandra arrived in England to become acquainted with the Queen while Bertie was sent off again on another Mediterranean cruise, this time with Vicky and her husband, Prince Friedrich of Prussia. By day the 17-year-old Danish girl wrote letters to her fiancé; at night she sat with Victoria and listened to stories about Prince Albert. Her charm captivated the melancholy Queen.

A liberated Prince of Wales

The day before the wedding Queen Victoria took the engaged couple to the Frogmore Mausoleum where Albert lay enshrined, joined their hands in hers, and declared: "He gives you his blessing!" Alexandra considered herself blessed: "You may think I like marrying Bertie for his position," she said to Vicky, "but if he were a cowboy I would love him just the same and marry no one else!"

Marriage and the establishment of a separate household liberated the Prince of Wales from many of the ties that had bound him to his mother. Two homes were created for him: Marlborough House in London and Sandringham in Norfolk. While the Queen retired into the shadows of a prolonged grief, society centered itself on the youthful Prince and his beautiful Princess. Bertie, so long repressed, accepted this new role with gusto while Alix, not yet 20, did her best to keep up.

Ten months after her marriage, Princess Alexandra rose abruptly from watching the Prince play ice hockey, rushed home, and was delivered of a seven-month boy. In conformity with Queen Victoria's wish that all her male descendants should have the name Albert among their other names, and her female descend-

ants the name Victoria, the child was formally named Albert Victor Christian Edward. In the family, however, he was called Eddy.

In 1867, near the end of a pregnancy that resulted in the birth of her first daughter, Princess Louise, 22-year-old Alexandra came down with rheumatic fever. The attack began in February, and it was July before she could be wheeled into the garden. Bertie, at first solicitous, soon grew bored. "The Princess had another bad night," wrote an indignant lady-in-waiting, "chiefly owing to the Prince promising to come in at 1 a.m. and keeping her in a perpetual fret, refusing to take her opiate for fear she should be asleep when he came! And he never came until 3 a.m.!" This prolonged illness left Alexandra with a permanently stiff knee and a limp. The illness also triggered a form of deafness, hereditary in her family, which grew worse as the years passed, preventing her from full participation in the life of her restless, exuberant husband.

"Bertie" and Princess Alexandra of Denmark on their wedding day, 1863.

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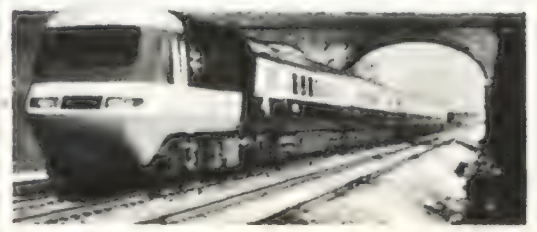

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For many years Bertie's life was one of churning, purposeless activity. The Prince of Wales spent an extraordinarily long time—eventually it stretched to 59 years—in the nebulous role of heir to the throne, waiting for an event that he must simultaneously have wished for and dreaded. He was denied any but the most superficial role in government: "I could hardly bear the thought of anyone helping me or standing where my dearest had always stood," Victoria later admitted, explaining her treatment of Bertie. Frustrated, the Prince found release for his energy in pleasure and frivolity, shooting, the racetrack, yachting, the theater, card games and the soft laughter of beautiful women.

Barred from serious work, Bertie sought diversion in travel. In 1866 the Prince of Wales journeyed to St. Petersburg to represent the Queen at the marriage of Alix's younger sister Minny to the Czarevich Alexander (known as Sasha) of Russia. Alix, desperately eager to attend, was preg-

nant and had to remain behind. In 1868, however, she accompanied the Prince on a seven-month tour that took them to Paris, Copenhagen, Berlin, Vienna, Cairo, Constantinople, the Crimea and Athens.

In Egypt, six blue-and-gold river steamers bore the royal party 500 miles up the Nile, towing barges laden with 3,000 bottles of champagne, 4,000 bottles of claret, four French chefs, four riding horses, and a white donkey for the Princess. Returning to Cairo, Bertie climbed the Great Pyramid and Alix visited a harem where the ladies painted her face and eyes, wrapped her in a robe and veil, and sent her back to surprise and tantalize her husband.

In 1875 Alix hoped to accompany her husband on his trip to India, but Bertie insisted on exclusively male company. Sartorial elegance was always important to the Prince of Wales and, admitting that long swallowtail coats would seem odd in India, he designed a short dark jacket to be worn with dark trousers and a black bow tie—the birth of the dinner jacket, or tuxedo, as it came to be called in America.

Libertines and faithful spouses

Travel, however exotic, was not enough to calm the restless Prince of Wales. In the matter of marital fidelity, a curious cyclical pattern manifested itself in the behavior of the British royal family. Queen Victoria's kingly uncles, monarchs of an older school, surrounded themselves with mistresses and royal bastards. Victoria and Albert, immersed in each other, disdained such practices. Their attempt to give the nation a perfect Prince miscarried, at least on moral matters, and Edward VII enjoyed the favors of many women. His son and successor, George V, was a family man, devoted to Queen Mary. Their son Prince Edward, later King Edward VIII and later still the Duke of Windsor, achieved a curious sort of compromise, entering into several in-

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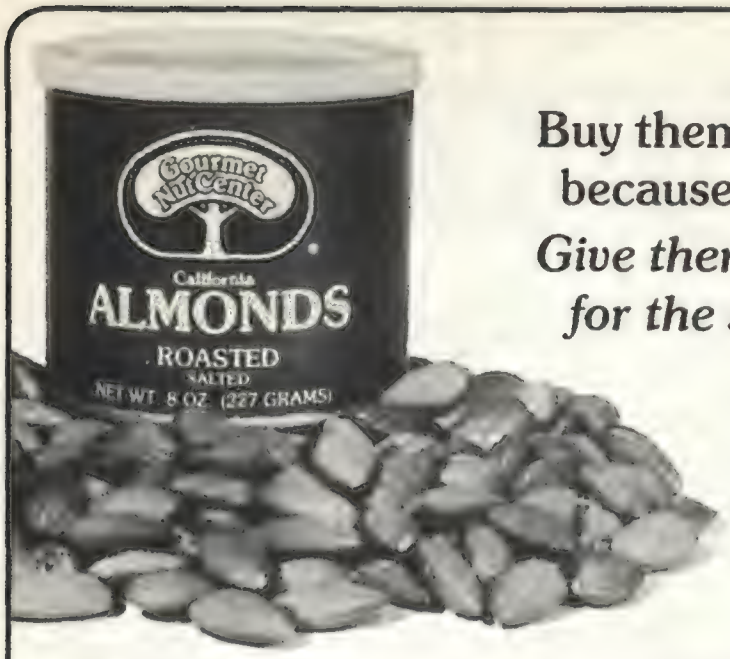

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Victoria, Mary, Alix, Edward, 1901.
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tense affairs with married women before finally settling down for life with Mrs. Simpson.

For several years after his marriage, Bertie found fulfillment in his beautiful wife, but innocent beauty alone could not absorb all of his brimming vitality. Once his wife was hampered by deafness, Bertie grew increasingly bored in her company. Temptation often came his way, and often Bertie succumbed. The Prince of Wales' affair with Lillie Langtry, the professional beauty whom he subsequently helped to become an actress, was conducted with the public acquiescence of Edward Langtry, the lady's husband. Nor was there ever any public unpleasantness from the husbands of Lady Brooke (later Lady Warwick) or Mrs. George Keppel. As long as no public scandal was permitted, Princess Alexandra remained gracious and forbearing—even tolerantly amused. An example of her attitude is presented by Georgina Battiscombe:

Albert (George VI), Henry (Duke of Gloucester), Edward (Edward VIII).

"One day, she [Alexandra] chanced to look out of the window at Sandringham just as her husband and his mistress were returning from a drive in an open carriage. The Princess herself never lost her graceful slimness but Alice Keppel, her junior by 25 years, had already grown very stout, whilst the Prince of Wales had long merited his disrespectful nickname of 'Tum-Tum.' The sight of these two plump persons sitting solemnly side by side was too much for her equanimity; calling her lady-in-waiting to come and view the joke with her, she dissolved into fits of laughter."

Set partially to one side by her husband, insulated from society by her deafness, the Princess of Wales turned to her children, her horses and her dogs as the central interests of her life. Before she was 27, Alexandra had borne six children. The youngest died within 24 hours of birth, but on the others—two sons and three daughters—she lavished time and affection.

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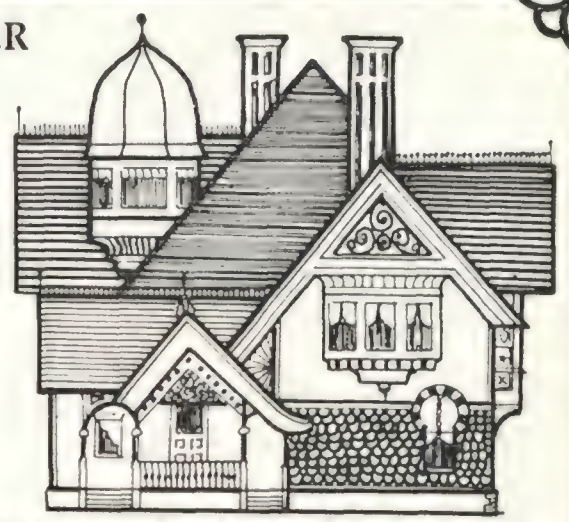

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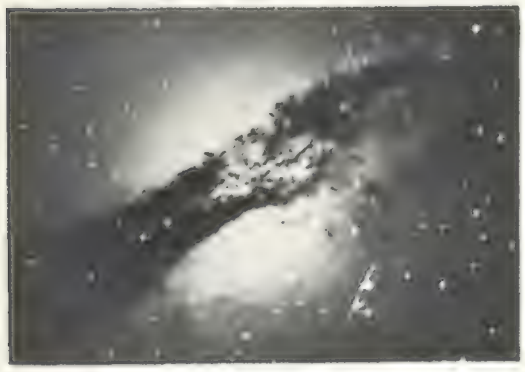

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Tea al fresco at Sandringham, with (from left) the Countess of Macclesfield, Edward VII, Miss Charlotte Knollys and the great tenor Jean de Reszke.

The two "Wales boys," as Queen Victoria referred to her grandsons Prince Eddy and Prince George, grew up exceptionally close to each other. All too soon, however, the difference between them became embarrassingly apparent. Prince Eddy, the heir to the throne, was markedly inferior to his younger brother, not only in academic matters, but in every area.

At home, Queen Victoria's long reign stretched on and on, and Bertie, an intelligent, curious, enormously energetic man now in his 50s, still had nothing serious to do. There were those—Mr. Gladstone, the Prime Minister, among them—who believed privately that the Queen should abdicate, but despite her threats when crossed to do so, Victoria had no such intention. Indeed, her majesty continued to wax: she became Empress of India in 1876; she celebrated her Golden Jubilee in 1887, and her Diamond Jubilee (60 years on the throne) in 1897. She went on to the age of 81, outliving three of her nine children. The great Queen's own death finally came on January 22, 1901, her family assembled around her bed, the Prince of Wales kneeling at her side, the German Emperor, her grandson, supporting her with a pillow in his arms. "The last moments," an observer reported, "were like a great three-decker ship sinking. She kept on rallying, and then sinking," recognizing people, calling their names, then gasping for breath and closing her eyes. When she was gone, the Kaiser and the new King Edward VII themselves lifted her into her coffin.

As King, Bertie adopted a routine that took on a regular annual pattern. The winter months were spent at Sandringham, Windsor and Buckingham Palace. In March he left for Paris, Biarritz, and a month's cruise

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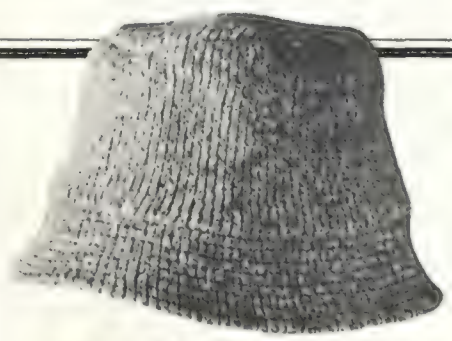
on his yacht in the Mediterranean. In May he returned to London for the Season, attending Ascot in the middle of June and in August presiding over the annual regatta at Cowes. Late in August and early in September, while Queen Alexandra joined her sister Minny in Denmark, the King dieted at a German spa. He hunted grouse and deer at Balmoral in October, then for the holidays went to Sandringham and London.

The one person whom Edward VII could neither dominate nor intimidate was his wife. To the King a rigidly planned, precisely executed schedule was the cornerstone of daily life. Queen Alexandra was vague, impulsive, unmethodical, and decidedly unpunctual. And although she knew that these habits exasperated her husband, she made no attempt to change them. "Keep him waiting, it will do him good," she once declared to a courtier who reminded her that His Majesty had been waiting for half an hour. Always 20 or 30 minutes late for dinner, she could be even more dilatory on formal occasions.

To the end of her life Queen Alexandra retained her uninhibited,

Alexandra, 1889, with sons George (later George V) and Eddy, who died.



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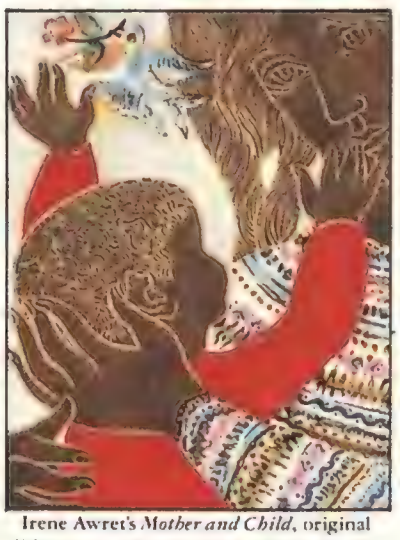

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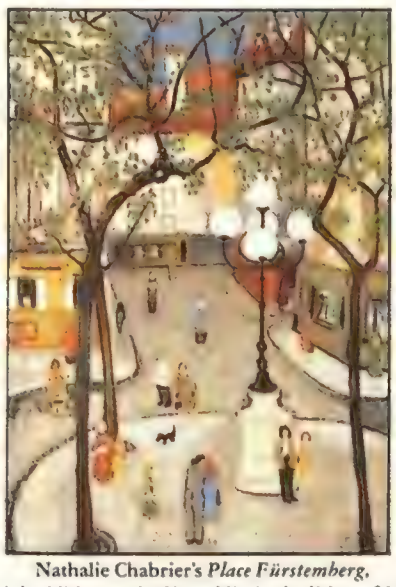
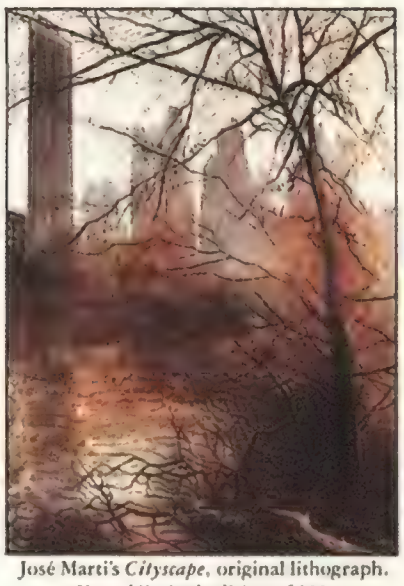


Nathalie Chabrier's *Place Fürstemberg*, original lithograph. Signed limited edition of 250.



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warmhearted nature. As Princess of Wales, she visited John Merrick, the unfortunate "Elephant Man," became his friend, and wrote him a card every year at Christmas. Visiting a hospital during World War I, she approached a patient depressed because a wound in his knee had made his leg permanently stiff. "My dear, dear man," said Her Majesty, "I hear you have a stiff leg; so have I. Now just watch what I can do with it." So saying, she hoisted her skirt and swung her own stiff leg in a dazzling arc over the top of his bedside table.

Alexandra's sympathetic spirit was never better exhibited than at the moment of Bertie's death. The King had been stricken with severe bronchitis followed by a series of heart attacks. After his doctors abandoned hope, he sat hunched in an armchair through a long afternoon, while his family and friends came to say goodbye. Before his consciousness faded, Queen Alexandra—in one of the most generous gestures ever made by any wife—sent for Mrs. Keppel so that she, too, could bid farewell.

Prince Eddy seeks a wife

The succession to King Edward's throne was served, many thought, by Special Providence. In the normal sequence, Prince Eddy, despite his defects of intelligence and character, would have worn the crown. Assuming this to be the case, his family was keenly interested in whom he would choose to be his bride. At first, Eddy had been attracted to his golden-haired cousin, Princess Alix of Hesse, but she firmly rejected his suit. Next, Eddy fell in love with Princess Hélène, daughter of the Comte de Paris, pretender to the throne of France. Although Hélène was a Roman Catholic, she promised to convert to the Church of England. Princess Alexandra was enthusiastic, the Prince of Wales approving, and Queen Victoria consented. Unfortunately, the Comte de Paris did not like the idea of her conversion, and when the Pope flatly

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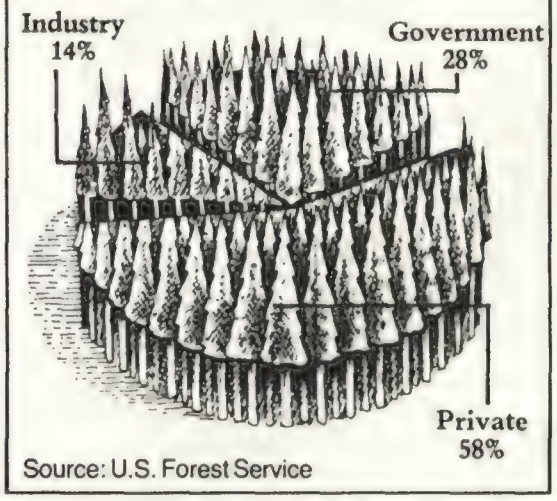
Commercial forest acreage owned by the forest industry, government, and non-industrial private owners.



Source: U.S. Forest Service

*"Commercial forest" is all forest land whether owned by individuals, government or the forest industry that is capable of, and available for, growing repeated crops of trees for harvest. It includes land in National Forests but not in National Parks or Wilderness areas.

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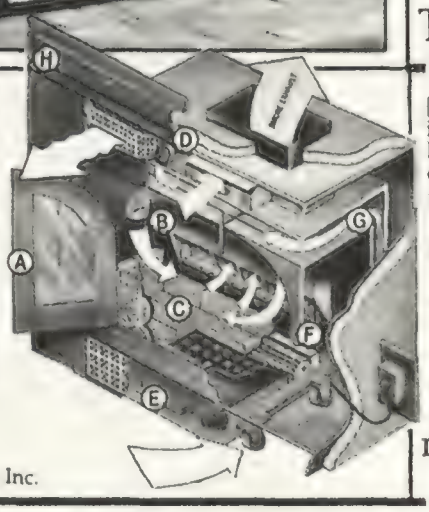

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Prince George (later George V), center, on Torpedo Boat No. 79, 1888.

refused, the whole affair was dropped.

Queen Victoria then took charge of the matter, looked over the list of eligible Protestant royalty, and chose tall, quiet, serious Princess Mary (called May) of Teck as best qualified. Prince Eddy, then 27, proposed and became engaged in November 1891. Then in January, at Sandringham, he came down with influenza. Four days later it was pneumonia, and on January 14, 1892, Queen Victoria received a telegram at Windsor from the Prince of Wales: "Our darling Eddy has been taken from us."

George and May had stood by Eddy's deathbed, and the younger brother was stunned by what had happened. Not only did he have to cope with his great loss, but he had suddenly inherited all of Eddy's fu-

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Until his elder brother died, he expected to have a career in the navy.

ture: he, who had served 15 years in the Royal Navy without ever imagining he would rule anything larger than a quarterdeck, was now heir to the throne after his father. As such, it was now his duty at 26 to marry and provide the monarchy with continuity and a future. Here Queen Victoria did not hesitate. She had chosen May of Teck for Eddy; she would do equally well for George. Eighteen months after Eddy's death, on July 6, 1893, George and May were married.

Princess Alexandra, generously giving up one son to another woman soon after having lost her first, wrote: "I pray to God to give you both a long and happy life together and that you will make up to dear May all that she lost in darling Eddy."

This was a heavy burden of respon-

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sibility to impose upon the grieving Prince, but he told his parents that he felt he could love someone who would be able to love him. He soon found himself succeeding. In 1911, after 18 years of marriage, King George congratulated Queen Mary on the success of their partnership: "We suit each other admirably & I thank God every day that He should have brought us together, especially under the tragic circumstances of dear Eddy's death & people only said I married you out of pity & sympathy. That shows how little the world really knows what it is talking about."

Europe's royals were, generally speaking, unremarkable people. Children dressed in purple must still conform to genetic laws, and one of the disadvantages of hereditary monarchy has always been the excessive role played by simple luck. All too often the quality of a nation's sovereign has depended on the mere chance of which child was born first.

There have been other hazards greater than hereditary, of course. War and revolution have shaken the foundations of European society, causing governments and crowned heads to topple. Those monarchs who, all along, have managed to survive seem invariably to have been those capable of blending personal dignity and a strong sense of duty with deft adaptation to political and social change. Over the centuries, the most successful at this have been the kings and queens of Britain, and in modern times, the sovereign who found the wisest path and showed it to others was Queen Victoria. Guided by her great prime ministers, sometimes despite herself, the Queen during her long reign gave up most of the Crown's waning prerogative and transformed it into an immense new royal prestige, a symbol of continuity.

To some, it seems strange that monarchy flourishes most healthily today in those European states that are most strongly democratic. This too is a legacy of Britain's great Queen. Victoria was not a democrat, but she was also not a snob. By placing herself above all classes, she became a representative of the entire nation.

Those who live in republics have sent away their monarchs and chosen other symbols to look up to—film stars, sports heroes, a charismatic President and his family—all of them figures seen as something bigger and better than ordinary people. Yet all these are, to some degree, transitory. Nothing in American life or in the history of its political institutions, for instance, can match the awesome ring of the statement: "Queen Elizabeth II is the 38th monarch of England since the Norman Conquest."

The Prince and Princess of Wales on elephants in India, 1905. The princess is shaded by two umbrellas, one for sun, the other to denote royal status.

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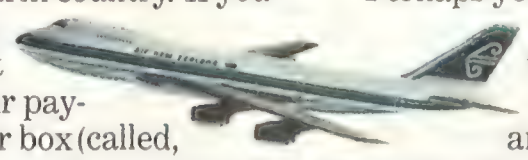
In your wanderings you may want to stop at one of the many fresh produce stands in the Otago farm country. If you don't see a proprietor, it's because there isn't one. Simply leave your payment in the open cigar box (called, appropriately enough, an "honesty box") which serves as the cash register.



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By Curtis and Kathleen Saville

They row, row, row their boat across the Atlantic Ocean

First American team to make a transatlantic passage, two young salts set records with a unique self-steering, solar-equipped boat

The wind backed around and came at us head-on out of the southwest. It built with incredible speed to ferocious intensity. We were appalled by the deep valleys and breaking wave crests, the foam gushing around our boat *Excalibur*, the spray spitting in our faces.

Thirteen hours earlier we had left Casablanca headed for the Canary Islands, from where we would start our transatlantic row to Antigua in the West Indies, yet we were still dangerously close to the rock-reefed Moroccan coast. We dug our oars into the foaming waves and pulled with all our might. Blisters on our palms and fingers burst and stung with salt.

Local meteorologists had assured us that we could expect four days of favorable northeast winds to help us clear Morocco, so we had scheduled our departure for high tide—1:15 P.M.—on March 18. Even as a party atmosphere developed among the well-wishers at dockside, we experienced a growing fear of what lay ahead: 3,000 miles of open ocean.

Through most of the afternoon we rowed. The motion—the incessant bouncing around—was the most shocking aspect of our introduction to life at sea. We were both seasick and took turns leaning over the side. The choppy waves and wind abated in the evening and for several hours we had beautiful rowing weather.

Kathleen angles her oars to cope with the uneven waves, moments before being knocked from her seat.

Then it began, with a light southwest breeze. Conditions deteriorated quickly and the waves built. We heard a crack and looked up to see the mast that supported our radio antenna, flags, radar reflectors and navigation light come crashing down toward us. We fended it off as it careened into the water, light still on. We grabbed it and lashed it to the deck. The wave crests began breaking on us and we couldn't keep our heading into the wind. We took in the oars and deployed a sea anchor from the stern—like throwing a small parachute into the water as a brake. The combined action of the boat's autohelm (an automatic steering device) and the sea anchor improved our heading so that we started to drift north along the coast instead of northeast onto it.

We were soaking wet in our long underwear, sweat suits, life jackets and safety harnesses—precautions against the rocks when and if we were blown ashore. By dawn of the second day, we had been propelled back past the harbor entrance, where we'd started, and felt that our chances of a crash landing were overwhelming. We wondered if we'd be smashed, knocked unconscious, drowned. We experienced a kind of numbing despair, but not fear. Under those conditions you have to do everything possible to survive, so we prepared ourselves to get clear of the boat, through the breakers and across the rocky shores to firm ground. We took turns standing watch and trying to get some rest in the cabin. And we prayed.

From Zvir*'s deck, a deceptive view*

How different this coastal area looked now compared to the time we first saw it from the deck of the Yugoslavian freighter *Zvir*, which had carried us together with *Excalibur* and our gear—food, sleeping bags, medical supplies, weather instruments, charts—to Casablanca from Baltimore in February. Anchored outside the harbor waiting for dock space, we had noticed then that the waters were unusually placid.

Our plan to row the Atlantic was long in the making. In 1967 Curt (who later went trekking in the Arctic and the Andes) was caught in a violent storm while duplicating part of Thoreau's canoe trip on a lake in Maine. Having weathered the rough water in a canoe especially adapted for oars, he began considering the possibilities of a transoceanic rowing expedition and started reading about earlier voyages. By the time we discovered each other at the Narragansett Boat Club in Providence, Rhode Island, a few years later, Kathleen was already an experienced rower and captain of the women's crew at the state university. When we returned from a trip together on Moosehead Lake in an oar-rigged canoe in 1979, we took two momentous steps: we got married and started to think

© 1981 Curtis and Kathleen Saville

The Savilles test the seat and oarlock systems, and themselves, during their boat's first bare-hull launch on Rhode Island waters in August 1980.

seriously about a transatlantic row. We wanted to be part of the new age of exploration that started when Neil Armstrong stepped onto the moon, and decided that our contribution would be an attempt to set new standards for speed and safety in ocean rowing and, if we could, to demonstrate the potential of solar energy and of efficient design.

We studied all the accounts of modern rowing expeditions that we could find. We also studied boat design and talked to builders. Edward Montesi, of Barrington, Rhode Island, volunteered to design *Excalibur* using a sandwich construction of fiber glass and plastic foam. Several corporations donated equipment such as the autohelm, oars, water-tight hatches, bilge pumps and solar panels (attached to our cabin top, they supplied more than enough electricity for the autohelm, the navigation and cabin lights, radio and spotlight; we could have run a refrigerator, too—who says you can't use ice cubes in the middle of the ocean?). The Explorers Club helped us, also, with a grant.

We crafted the hull ourselves in a barn with the aid of Peter Wilhelm, a racing-shell builder and ham radio operator who, with his father Kurt, faithfully kept in touch with us on a regular schedule—Tuesdays and Saturdays—from the February day when we drove out of Providence with our boat in tow, heading for Baltimore harbor and the *Zvir*, until we finally stepped ashore June 10 on the Caribbean island of Antigua.

Now, buffeted by the storm, our thoughts returned to the first mate of the *Zvir*, Lukin Zoran, a tall man with rough features who spoke English with a thick Yugoslavian accent. He had learned of our plans and called us to the bridge: "Do you know what it can be like out there? Have you ever been to sea?" We answered in effect: "Yes, we feel we have taken the necessary precautions to ensure our survival." We had conditioned ourselves with 50-pound barbells, run five miles a day and completed about 200 miles of test rowing, including 40 miles in Rhode Island Sound, where the *America*'s Cup trials are held, although we had never rowed in a storm.

Zoran frowned: "I have looked at your boat and it seems very well thought out and built. I think it will come through. But it is *you* who must survive. You will want to jump overboard and want to be done with the voyage. They find the *Puffin* with nobody aboard. Maybe they were washed over, maybe they jumped off. You must think of the psychology of survival." The *Puffin*, a rowing boat especially designed for the Atlantic, left Virginia in 1966 with a crew of two, headed for Great Britain. It was eventually found awash off Newfoundland with no trace of life.

As we headed for the Canaries the ocean was living up to Zoran's predictions, but on March 22, Kathleen's birthday, the seas gradually calmed and we put up our mast again.

Kathleen's log: March 27. The morning was beautiful, absolutely calm. We took advantage of the conditions to wash our hair and bodies. I cooked breakfast of bacon, eggs and coffee on deck. Curt went over the side to inspect the hull for barnacles and take pictures. The afternoon has turned around and the wind is blowing fairly hard. It looks like a storm. March 28. The weather has gotten worse. Enormous dark blue valleys roll up and break over the gunwales and over the cabin top. We are both wearing safety harnesses inside and outside the cabin in case the boat should go over.

With solar panels in place on cabin top, *Excalibur* leaves *Zvir* at Casablanca.

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Curt rigged his camera with a remote-control system, then floated it away from boat on an innertube to get this vertiginous shot of mast (left).

Curt's log: March 29. Big waves from the northwest. Gale-force winds shifted to north northeast and built counter waves from that direction. Have to keep on checking things on deck. Everything tied down? Rudder set OK? Sea anchor OK? Changing wind? Any ships in sight? Mast still all right? Radar reflector hanging on guy lines? We looked back to see mountains of blue-gray-white sea building toward us. March 30. Waves coming from two directions making Matterhorn-shaped mountains. Took in sea anchor. Better to float and drift where sea will take us. We sang songs: *The Star Spangled Banner, My Country 'Tis of Thee, Onward Christian Soldiers, Yellow Submarine.* This helps to improve our spirits and drown out the booming of the storm.

It blew for four days. When we took sun sights on April 1, we discovered we had been pushed 200 miles south and were only a few miles off the African coast, south of Sidi Ifni. We had been warned to stay clear of this area because of reported fighting between Morocco and Mauritania over control of the Spanish Sahara.

We were in the war zone and suddenly our navigation lights and radar reflector were more of a liability than a help. In this area, small boats were treated as hostile. We took down the reflector, stopped using the lights and began putting in long hours at the oars, rowing on toward the West.

Excalibur is fitted with sculling oars, like those used in rowing shells, and as we rowed at night the blades excited bioluminescent organisms. Pinpoints of light by the hundreds sparkled like a bursting fireworks display. We collected samples of this water and, later, of an oil slick for marine scientists.

Early one morning a trawler appeared on the horizon. We worried as it drew closer since in this strange region boats tended to avoid one another. Curt grabbed the flare gun, berating himself for not having brought better armament, while Kathleen dived to turn on the radio, trying to find a station to call right away if necessary. If worst came to worst, at least our situation would be known. Suddenly the trawler altered

Strain on Curt's face reflects struggle to pull clear of African coast, the only time Kathleen wore gloves.

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course and headed away. Maybe the crew thought we were brandishing more than a flare gun.

The constant onslaught of salt water had badly corroded the wires leading from the solar panels to our batteries (they were no longer charging) and we knew we would have to put in at the Canary Islands for repairs. A fortunate radio contact (Kathleen mastered Morse code to obtain an amateur radio operator's license) put us in touch with a German electronics manufacturer whose yacht, *Jangada,* was in the area. We rendezvoused off the island of Fuerteventura on April 10, the first time in 24 days that we had seen other people. When we climbed onto the relatively stable deck of *Jangada,* we felt nauseous and had to sit down or fall down—which Curt did. It was as though someone had tilted the horizon 90 degrees. We then towed *Excalibur* to the island of Tenerife to have the solar panels rewired and calked to prevent new corrosion.

A week later *Jangada* towed us to Hierro, westernmost island in the Canary chain. On the morning of April 21 she towed us again, this time to a point south of the island. The line was cast off and we were free.

We soon entered the Canary-North

Hunched in the cabin, Curt plots daily course with charts, navigator's tools.

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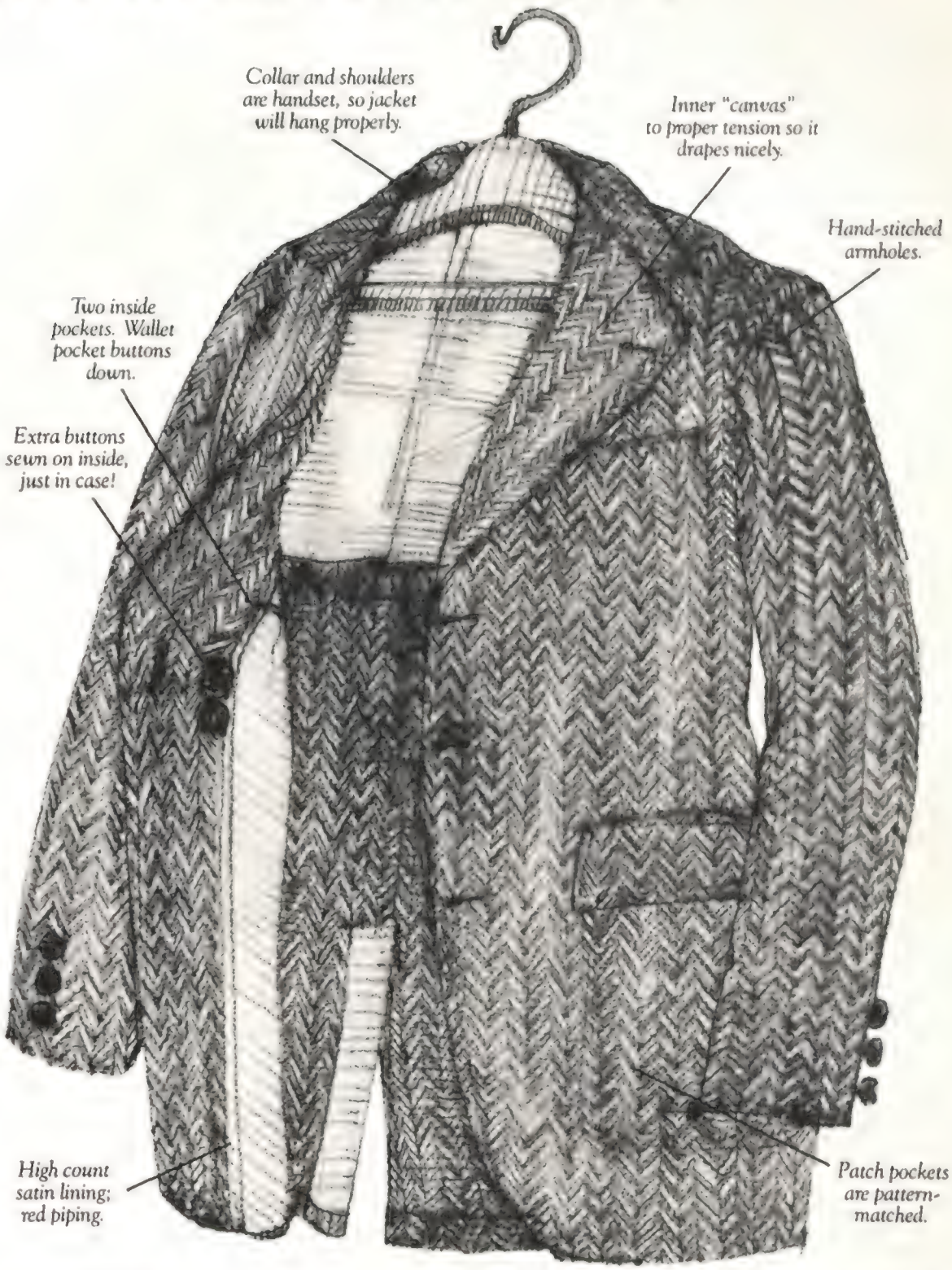
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Equatorial current systems—the great conveyor, the great movement of wind and sea from East to West, representing a prodigious amount of nonpolluting energy that Man ought to be able to make use of. *Excalibur* was now being propelled and would probably have fetched up somewhere on the other side of the ocean whether we were rowing or not, whether it was self-steering or not. Very few ships were out there in one of the world's great surviving wildernesses, and afloat in it, we settled down for the long haul.

Kathleen's log: May 1. Curt and I awoke early in the gentle rolling of the sea. Crawling out on deck to row, the first thing we saw was a 12-inch flying fish! It had flown aboard during the night and expired on deck. In honor of the event and in keeping with the old Rhode Island tradition, I set about making a May Day breakfast feast. Oranges, sweet pan bread, potatoes, coffee and the exotic gift from the sea. Was the flying fish a good omen for the voyage?

Six days later the sea was completely calm. There wasn't a wave, a ripple or a breath of wind. An eerie silence surrounded *Excalibur*. Delighted, we

Kathleen translates written message into Morse code and taps it out on key.

By authority of its Congressional Charter: The U.S. Capitol Historical Society announces

The Victory At Yorktown

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declared a holiday. We went swimming, took pictures of the boat underwater and watched our tiny shadowers, the silver-and-purple-striped pilot fish. We even developed a roll of black-and-white film to make sure the camera was still working. A sudden whooshing sound alerted us to two whales that had surfaced about 100 feet off our bow. We quickly tied down loose gear and kept a careful watch, but after taking two deep breaths, the whales dived and we never saw them again.

During the night the wind picked up and we heard a radio report that disturbed us. (We could receive voice broadcasts but were allowed to transmit only in Morse code. We listened to the BBC, the Voice of America—all sorts of stations. We heard when President Reagan was shot, when the Pope was shot, when the president of Bangladesh was assassinated—and sometimes wondered why we were rowing so hard to get back to civilization.) The announcer said that the hurricane season had started early in the Caribbean and joked about "the baby"—Hurricane Arlene—being born. We didn't laugh.

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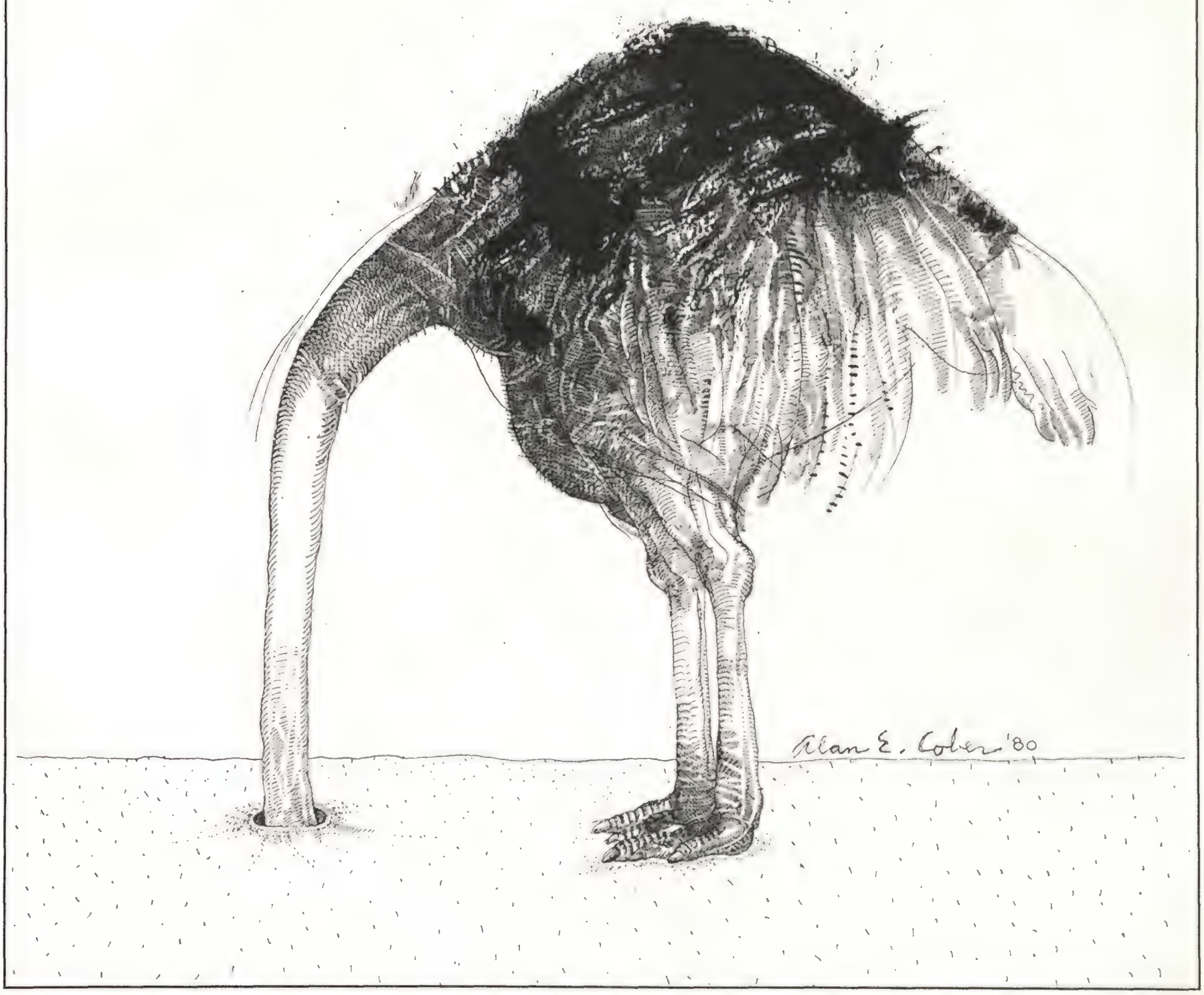

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Curt's log: May 8. We began thinking of this rowing expedition as a rowing race on a gargantuan scale, where we race the hurricanes and the price of defeat could be death.

We decided to draw upon our competitive instincts for the strength to move quickly enough to survive, and discussed ways of completing the passage faster than anyone had yet done. If we could make it to the mid-ocean point of 40 degrees west by May 17, we might have a fighting chance to reach Antigua in 50 days—five fewer than Frank Samuelson and George Harbo's 1896 transatlantic record.

We started rowing seven to eight hours a day—sometimes together, sometimes separately—mainly in the early morning and evening, adapting our style to higher wave conditions. When you're rowing in a race, you use a regular beat, one stroke after another, consistently. But now the wind was kicking up 12-foot seas, so we took several quick strokes and then lifted our blades out of the

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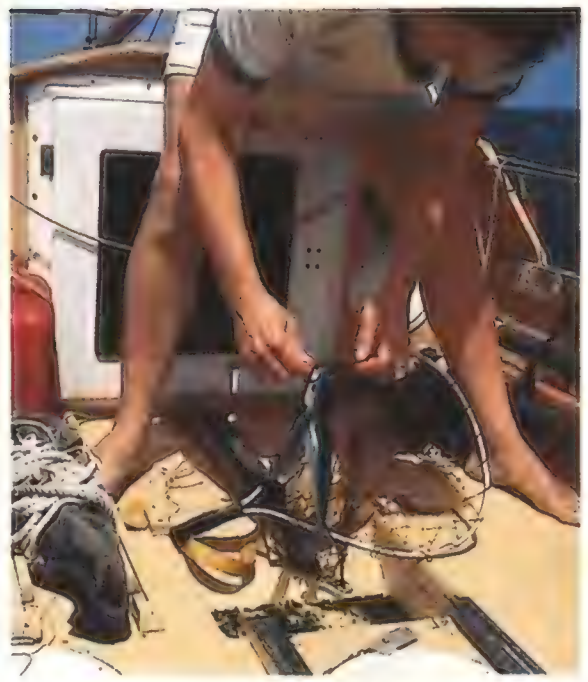

Curt disentangles a flying fish from his net. Fish "flew" aboard regularly.

water—the waves were high on one side of the boat and low on the other, making for uneven pulls, with one blade up, one down—and then surfed down the front of the large rollers. The speed—seven to eight knots for brief periods—was exhilarating. We moved fast because the autohelm kept us in a straight line and, with the hull design, we could maintain our direction even while surfing—thanks also to a large rudder and two dagger boards (like keels extending vertically below the waterline to lend stability). But it was frustrating at first, not getting a nice rowing style. Sometimes we were knocked off our seats. We felt as though we weren't moving forward, but kept plugging.

For top efficiency, it was best to row for a couple of hours, take a ten-minute break and eat an orange or candy or drink some juice, give the muscles a rest, and go back to it. We'd get up in the pre-dawn to take some star sights and then start rowing.

Taking star sights—celestial navigation—is easier said than done on a 25-foot rowing boat being pitched around by the waves. You have to find an object in the sky—a star or planet or the sun—and "bring it down" to the horizon with a sextant, which gives you its altitude above the hori-

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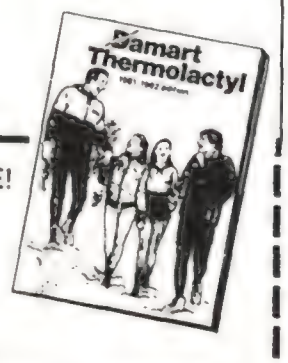

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A relaxed Kathleen reads of transpacific rowing adventure, perhaps thinks ahead.

zon. But if you can see the horizon only when you're at the top of a wave, well. . . . This is where we worked together, Curt braced on deck with the sextant and Kathleen in the cabin with a watch, because you also have to record the precise instant that the object touches the horizon.

The increased rowing schedule gradually took its toll on our bodies and minds. Kathleen had been feeling aches and pains in her knees and shoulders and now noticed pains in her hips. Asleep in the cabin, she would awaken about every 20 minutes to turn and try to find a comfortable position.

Curt became so tired that he could barely crawl out of the cabin some mornings. He had a burning, digging pain in his left shoulder that stung with every stroke. It first began in the storm off Morocco when we had to row so long and hard without being warmed up. Now it came back. He tried thinking about things other than pain and his mind wandered.

As we rowed, we told each other about our dreams; we were having a lot, and in vivid color. They seemed to us experiences that had actually taken place. Curt dreamed of a seance

in which we were sitting on a couch when the medium conjured up a *knitted* sheep. (We've never been to a seance.) The sheep ran wildly around the room, jumped up on the back of the couch and bit Curt in the neck. He woke up screaming with a terrible pain in his neck and shoulder.

Later, when he crawled out on deck to row—we had been thrown around in the cabin all night by rough seas and hadn't slept for more than 20 minutes at a stretch—he saw lots of knitted sheep all around the boat. They would come up, jump and disappear, jump and disappear. Wide awake now, he watched some of them jump right onto the deck. Then he recognized them as breakers and whitecaps—the sheep of his dream.

We often "heard" people talking (water rushing by the hull sometimes sounds like voices) and occasionally heard a dog bark. That *was* a mystery; there was *definitely* a stowaway dog on board and we tried to find it. We were aware of getting foggy in the head, but kept thinking maybe there really *was* a dog.

Curt was rowing by himself one time and was startled by the sound of a human voice. He stopped rowing,

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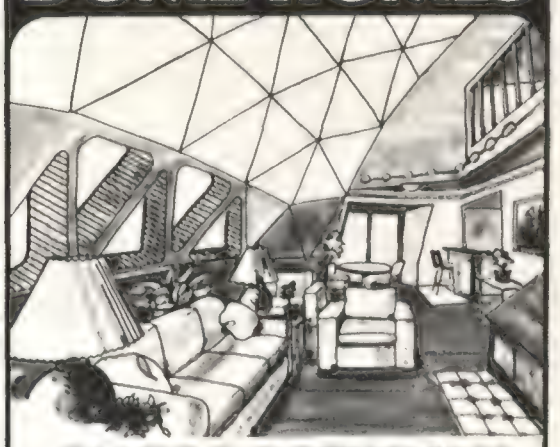

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scanned the horizon for another boat—he even waited for several waves to pass—and then heard it again as Kathleen stuck her head out of the cabin in midsentence.

As time passed, our conversations became curiously open-ended. We dropped statements in midthought, only to pick them up again, days later, without warning. When Curt spoke of how, as a child, he had been made to write "I must be a good boy in school" a hundred times for a minor infraction, there was no comment from Kathleen. But several days later, as though no time had elapsed, she announced that the teacher showed a lack of imagination and should have thought up a punishment that *taught* something.

Halfway to Antigua on May 18, we celebrated by raising our flags, drinking champagne (unchilled, so the cork went flying up in a bubbly geyser) and throwing a note-stuffed bottle into the sea. "Greetings from *Excalibur*," the message began, English on one side of the paper and Spanish on the other. We offered a reward for return of the bottle. It's got our address and may come back.

Our expedition almost came to a quick and disastrous end on June 6 when the freighter *Atlantico,* out of Barcelona, nearly ran us down—twice. We had seen her from a distance and watched with fear as she came right at us with her giant bulb-shaped bow. Terrified that the crew couldn't see us underneath the bow, we struggled to back away—just in time. When we made radio contact with our VHF set, the captain offered to lower some fresh food on a raft and tow it to us, but the wave action was so great that the raft tore loose from its line the minute it hit the water. As we rowed for the raft, we realized that the ship was coming straight for us again, and again we were invisible under the bow. We hauled ourselves out of the way once more. Seconds later, the freighter was alongside, engines cut, and *Excalibur* rode up and down, up

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Curt stands lookout for passing ships, steadies himself by holding safety lines.

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and down, a captive of the suction effect growing between the two hulls.

Atlantico came down on one of our oars and smashed it. Suddenly a crewman threw us a rope and started pulling us toward the ship's stern. As we passed along the hull, the side of the freighter was no longer like a wall coming down on us, which we could reach and fend off, but like a ceiling crashing down with each wave. The steel bracket holding our navigation light was the next casualty. We were now only a few feet from the enormous propeller, which rose out of the sea, water cascading from it, only to plunge back down like a huge, rusty guillotine. It was the closest we have ever been to a real Edgar Allan Poe story. Ten feet away, six feet—it was coming closer and closer. The idiots were pulling us into it! What is Spanish for "Stop"? We had to stop them. *"Muy peligroso! Muy peligroso!"* Very dangerous! We must go back to the middle of your boat! We

made our point and they slacked off the line so that we could push our way to relative safety. In the process, we passed—for the second time—their bilge-water outlets at waist level and took gallons of filthy water into *Excalibur*. The crew finally lowered a generous amount of food, but if Curt hadn't spoken Spanish, we might be at the bottom of the Atlantic.

In the early days after leaving Hierro, we felt that we were rowing in place—not really going anywhere—just stroke, stroke, stroke, in the center of a circle with the horizon all around us. Watching the birds fly by (we saw birds all the way across the Atlantic) and the pink jellyfish sail along and the flying fish skim over the water—creatures so at home in the trade-wind belt—made us feel like archaic reptiles returned to the sea. Unlike our ocean mates, we were not well adapted for the kind of life we were leading.

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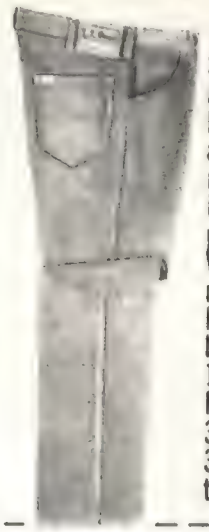

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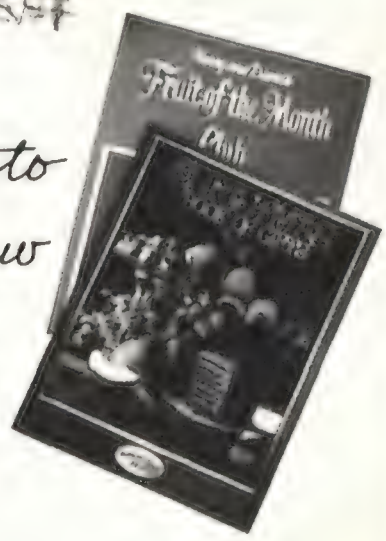

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end of one especially grueling day at the oars, the fishing pole that we kept propped in constant use suddenly bent in half, hit by something big. We grabbed it and took turns reeling in, with great difficulty, hundreds of yards of line. After 20 strenuous minutes ("It's a real fighter!"), we brought alongside what looked like a four-foot white eel about nine inches thick. We were near the Verde Islands and, thinking it might be a Portuguese conger eel, planned to battle it aboard and kill it to eat. By the time we found the field guide for a positive identification, we knew we had landed a big piece of polyethylene plastic.

During the first week in June, in anticipation of our landfall at Antigua, we practiced rowing at various angles into the wind. For weeks we had been moving *with* the wind and waves, but soon we would need more control, so we rehearsed "power pieces"—series of powerful strokes when you also push hard with your legs. For power and speed, you intersperse these—"power tens" (ten strokes) or "twenties," and so on—with periods of constant, comfortable stroking to keep from overtiring.

Our practicing was not in vain. It was dusk on June 9 when we drew within 20 miles of Antigua and realized that we could not reach land before dark, so we threw out the sea anchor to slow our drift. We were east

Jubilant in spite of sun-cracked lips, Savilles pull close to harbor at Antigua.

of the island and knew that there were dangerous reefs off its east coast. That night we took turns watching lights from Antigua that appeared on the horizon; they were the first sight of land we'd had since leaving Hierro. At dawn we saw that we had drifted within four miles of the east coast and were being blown toward the reefs. To reach the safety of English Harbour—our final destination on the south side of the island—we would have to row crosswind as hard as we could. The seas got choppy as we entered shallow water, and the rebound effect of waves coming off the island made them break into the boat. We rowed with "power pyramids"—ten powerful strokes and ten easy ones, then 20 powerful and 20 easy, then 30 and 30, and so on up to 60 of each, at which point we worked back down the pyramid. We missed the reefs by a third of a mile.

About three hours later, we passed the Gates of Hercules, the cliffs at the harbor entrance, and were greeted as the first American team to have rowed across the Atlantic (Kathleen is the first woman) in the fastest crossing in a rowing boat in any direction: 49 days and 20 hours. In averaging 14 strokes per minute with four oars, we had taken 1,403,200 strokes since leaving Morocco in that perilous storm. We still dream of those giant walls of green water surging toward us.

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Book reviews

Man as Art
Photographs by Malcolm Kirk
Text by Andrew Strathern
Viking Press, $45

What are we to make of the stunning images in this gorgeous book? From each of 63 color photographs the face of a New Guinean gazes out at us, startlingly transformed by paint, feathers, shells and bone into a decorative, or at least a ritual, object. And 31 additional photos in black and white of carved masks present other, perhaps even more haunting, transformations of the human face.

Yet it is impossible to regard these images as mere decoration. The eyes of a fellow human being look steadily out of each striking color pattern, a person who doesn't flinch in the camera's gaze and who obviously understands, and expects us to understand, that his or her costume has some meaning beyond the visual. We must therefore encounter these faces as people in some sense like ourselves, but in other important senses obviously unlike us. What meaning can these magnificent apparitions have to Westerners?

The book suggests two possibilities, each intriguing and revealing, but neither wholly realized. This book is the work of two people who approach the material from quite different standpoints. Malcolm Kirk, a photographer of very considerable ingenuity and skill, produced the photos and, one infers, accepts them as in some sense complete in themselves. "People seeing these pictures for the first time frequently exclaim, 'What fabulous photographs!' " he writes in his foreword. "Flattering though this is to my ego, I have to correct them by replying, 'No, what fabulous images!' My own contribution has been simply to record what exists." And he has done an admirable job of recording the visual nature of what exists, for these are spectacular and memorable images indeed.

The second contributor, anthropologist Andrew Strathern, suggests in his introduction a more complex possibility. For him the photos do not "record what exists" any more than, for example, an American wedding portrait "records" a marriage. It merely presents a stylized image of ritual costumes that have meaning only to those who understand the ritual before they come to grips with the picture. A wedding

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is a compact ceremony whose smallest details are fraught with understandings about male and female, innocence and experience, fertility, fidelity, family life, eternity. An exegesis of all of its meanings would require an essay at least as long as Strathern is permitted in this book, and he has to comment on the whole of New Guinea body and face decoration, encompassing many ceremonies in a number of distinct cultural traditions.

But Strathern's concerns go further. He wants us to understand that face painting in itself has very different meanings in New Guinea and in Western culture. Both men and women appear in

New Guinean: actor in a social ritual

these pages; indeed, men have by far the more splendid ornaments. Western practices of makeup and eyebrow plucking have begun to infiltrate the island, Strathern reports, and many New Guineans find it an extraordinarily odd notion that only women should don paint, and that they should wear it essentially all their waking hours. By painting their faces New Guineans do not intend to enhance their personal appeal as sex objects but to assume an identity as an actor in a ritual that strengthens the cohesion of the social group.

Thus, the title *Man as Art* finally dissolves into a paradox. The very notion of art in our sense, the appreciation of pleasing objects or images apart from their symbolic meanings, is foreign to New Guinean culture, it seems. One of

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Strathern's informants observes that beautiful and well-executed decoration and dancing help assure the group's prosperity; when they're poorly done, trouble soon follows. Perhaps this helps explain why these images are so compelling. Even as we take in their extraordinary beauty, their mystery deepens. There is always that other person gazing steadily across a broad and unbridgeable gap.

Beryl Lieff Benderly
Washington anthropologist
and author of *Dancing Without Music*

The Return to Camelot: Chivalry and the English Gentleman
Mark Girouard
Yale University Press, $29.95

In her introduction to *A Distant Mirror*, Barbara Tuchman describes chivalry in the "calamitous" 14th century as "the dominant political idea of the ruling class [which] left as great a gap between ideal and practice as religion. . . ." Champions of the oppressed were themselves the oppressors, "and by the 14th century the violence and lawlessness of men of the sword had become a major agency of disorder. When the gap between ideal and real becomes too wide, the system breaks down. . . . The sword is returned to the lake; the effort begins anew. Violent, destructive, greedy, fallible as he may be, man retains his vision of order and resumes his search."

The Return to Camelot, by the author of *Life in the English Country House* and *The Victorian Country House*, is about the resumption of this search. Limiting his subject matter to "chivalrous" gentlemen of the Victorian and Edwardian eras in the British Isles up to World War I, Girouard traces the remnants of the Arthurian legend as they expressed themselves in the conduct and culture of the time. (He has 292 pages of examples and 212 illustrations to prove his point.)

Meticulously detailed, the study omits no analogy. Reference is made to every minor, middling and major spiritual, cultural and political manifestation of chivalry. Influences cited range from Wordsworth's "Character of the Happy Warrior," appearing in 1807, which "transmuted the horrors of war to 'glorious gain,' " to the medieval remodeling of Windsor Castle by George IV, to Tennyson's *Idylls of the King* and, of course, to Sir Walter Scott. "One of Scott's great-

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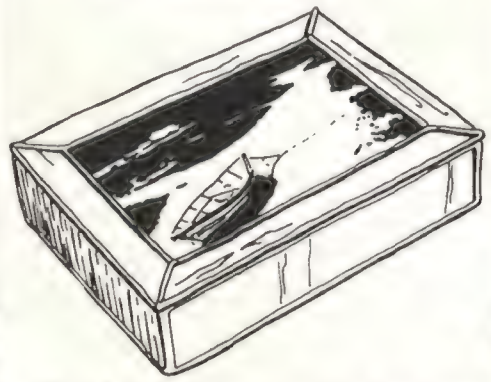

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est achievements," the author writes, "was to bring chivalry up to date, and popularise a type of character which could reasonably be called chivalrous, but was acceptable as a model both to himself and his contemporaries." From the pulpit of Christian Socialist Charles Kingsley, public-school boys were exhorted to follow "Muscular Christianity" while they gazed at stained-glass images of St. George. Knights of the Round Table appeared in the paintings of Millais and Rossetti and a book by an Irishman, *The Broad Stone of Honour*, provided a chivalric code for contemporary gentlemen and would-be gentlemen. For errant upper-class young men with decadence on their minds, there was Baden-Powell's Boy Scouts.

For all that, the search for a return to Camelot settled for feckless imitations. Since the squalid contemporary dragons of the Industrial Revolution seem to have had little appeal for those self-styled paladins, they satisfied their heroic longings in safer ways. In 1839 an elaborate jousting tournament at Eglinton Castle in Scotland was planned as the culmination of every fashionable knight's dream. It ended as a nightmare, with torrential rains creating "a scene of appalling chaos as tens of thousands of stumbling, slithering people looked in vain for their bogged-down carriages. . . ."

The failure, and subsequent satirizing, of Eglinton did away with many of the updated trappings of sixth-century knighthood. Girouard, undaunted, forges ahead, however, finding bowdlerized chivalry in the form of mawkish patriotism, colonialism, "courtly love" and gamesmanship. It is in this last category that the author's theme seems to find a home and completes the glorification of brainlessness. Camelot finally comes alive in cricket.

"The moral value of games," as Girouard refers to it, is to teach discipline, fair play, manliness and fellowship. At last a contemporary equivalent of the chivalric code is found. Hear the poet laureate in the 1890s:

Why mourn ye the age of bright
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While each knight of the bat
has a fair one to win?
Why deem we that courage and
honor are dead
While cricket enobles the young
heart within?

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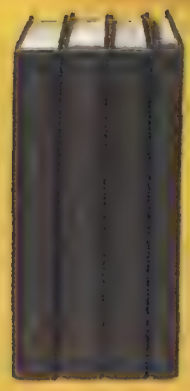

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short step from combat on the cricket field to the Somme. In *The Muse in Arms,* an anthology of war poems which appeared in 1917, its editor wrote: "The Germans, and even our Allies, cannot understand why this stout old nation persists in thinking of war as sport; they do not know that sportsmanship is our new homely name . . . derived from a racial predilection for comparing great things with small, for the *chevaleries* of the Middle Ages."

By 1918, the gap between the real and the ideal was, once again, too wide and the sword was returned to the lake. This reader returned to Mark Twain's *A Connecticut Yankee in King Arthur's Court:* "Yet there was something very engaging about these great simplehearted creatures, something attractive and lovable. There did not seem to be brains enough in the entire nursery, so to speak, to bait a fishhook with; but you didn't seem to mind that, after a little, because you soon saw that brains were not needed in a society like that, and, indeed would have marred it, hindered it, spoiled its symmetry—perhaps rendered its existence impossible."

Jill Merrill
Washington writer and critic

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Here, gleaned gluttonously from an irresistible book, are some facts that may, or may not, interest you:

Some best sellers of the 1800s included James Fenimore Cooper's *The Spy, The Pilot, The Pioneers, The Last of the Mohicans, The Prairie* in 1821, 1822, 1823, 1826, 1827, respectively; Jane Austen's *Pride and Prejudice,* 1832; Flaubert's *Madame Bovary,* 1881; Anna Sewell's *Black Beauty,* 1890.

The first official listings of best sellers appeared in 1895 in *The Bookman* and in 1912 in *Publisher's Weekly.* They included *Beside the Bonnie Brier Bush* by Ian Maclaren, 1895; *The Education of Henry Adams,* 1919; *Anthony Adverse,* Hervey Allen, 1933; *Gone with the Wind,* Margaret Mitchell, 1936; James Gould Cozzens, *By Love Possessed,* 1957; Jacqueline Susann, *Valley of the Dolls,* 1966; and *Jonathan Livingston Seagull* by Richard Bach, 1973, to mention a few.

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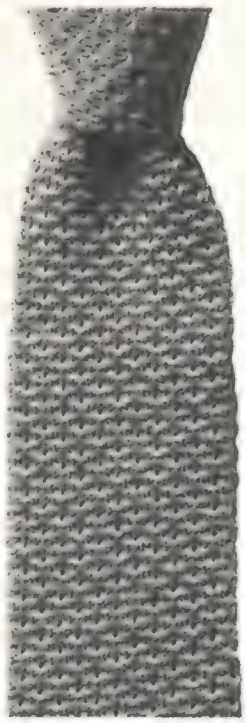

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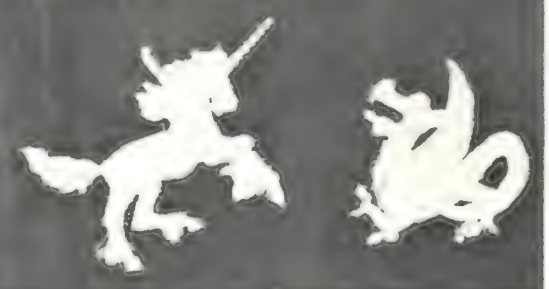

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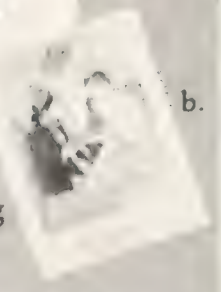

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there is little logic in why people buy books, which is to say, in how best sellers come about, consider worst sellers. For example, Stephen Crane borrowed $700, a substantial piece of change in 1892, to have *Maggie: A Girl of the Streets* printed. By working hard he sold 100 copies of this classic. What was left of the first edition he burned to heat his apartment on the Bowery. Thoreau made $15 in royalties from *A Week on the Concord and Merrimack Rivers,* his share of 219 total sales. All the remaining copies of the first edition of 1,000 he bought back from the publisher for $290. Cost to the author for publishing this other classic: $275.

Then there is a section of facts and figures in which you will learn, as you dip along, that Hezekiah Usher was probably the first bookseller in America, setting up shop in Cambridge in 1639. The country's first Presidential press conference took place in 1829 when an intrepid reporter named Anne Newport Royall trapped John Quincy Adams by sitting on his clothes as he skinny-dipped in the Potomac, refusing to leave until he answered her questions. Thomas Paine's *Common Sense* had a press run of more than a half million and yet, in 1779, he had earned so little from it that he still owed £39 for presswork. Henry David Thoreau was christened David Henry Thoreau. He changed the order. A nitpicker.

In the days of the Massachusetts Bay Colony there were letters, other than the scarlet A, that malefactors were made to wear as evidence of their corruption: I for incest; B for blasphemy; R for rape; P for poisoning; F for forgery; D for drunkenness; T for theft; and V for viciousness.

It was James Russell Lowell who introduced Alfred, Lord Tennyson, to Bull Durham tobacco; with what effect it is hard to say, but there is certainly material there for tobacco fiends or their fanatical adversaries. Or, an academic dissertation certainly. Stephen Crane, the 14th child of a Methodist minister, married the madam of an English whorehouse. Poet William Carlos Williams delivered more than 2,000 babies as a Rutherford, New Jersey, doctor. Our government runs the largest publishing business in the world with some 220 million items put out each year, about enough for each of us to have a copy of something or other. While studying at Bowdoin College, Nathaniel

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Hawthorne—who stuck the "w" into his surname—was fined 25 cents for "walking unnecessarily on the Sabbath."

Some current dollar evaluations of the worth of first editions: James Agee's *Let Us Now Praise Famous Men*, $125; Horatio Alger's *Ragged Dick* (12 known copies), $700; Audubon's *Birds of America*, between $300,000 and $500,000; Mark Twain's *Tom Sawyer*, $700-2,000; *Huckleberry Finn*, $1,000-3,000; T. S. Eliot's *Four Quartets*, $1,500; Harriet Beecher Stowe's *Uncle Tom's Cabin*, $15,000-25,000; Harriet Beecher Stowe's *The American Woman's Home*, $15.

There is a chapter of quotations that is enthralling to read. Here is one: Maxwell Bodenheim on H.L. Mencken: "H.L. Mencken suffers from the hallucination that he is H.L. Mencken—there is no cure for a disease of that magnitude." Well, two: Hemingway on F. Scott Fitzgerald: "His talent was as natural as the pattern that was made by the dust on a butterfly's wings. At one time he understood it not more than the butterfly did and he did not know when it was brushed or marred. Later he became conscious of his damaged wings and of their construction and he learned to think and could not fly any more because the love of flight was gone and he could only remember it when it had been effortless." And, if you think of Hemingway, that is a heartbreaking thing to read.

There is no more room for dipping. The text is 292 pages. It has a bibliography, an index and chapters entitled Names; Banned in Boston, and Elsewhere; Quotations; Hoaxes; Forgeries; Frauds; Thefts; Phenomena; Anecdotes, and other bits and pieces. It is a written book, although there are lists, and it is written very well. It is a delight. If you know someone, still, who loves literature, you have wisely and beneficently solved a gift problem.

The scientific name of the bookworm is *Anobium pertinax*.

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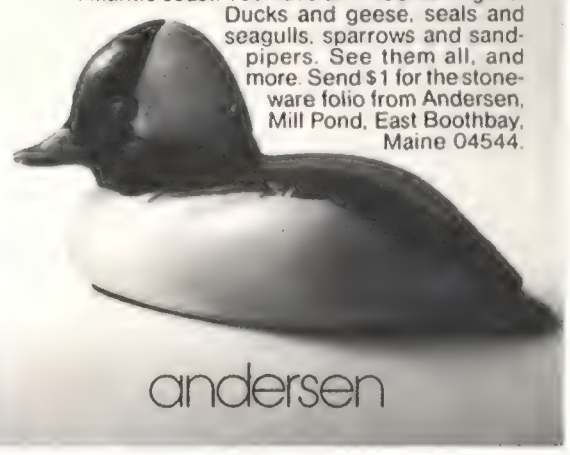

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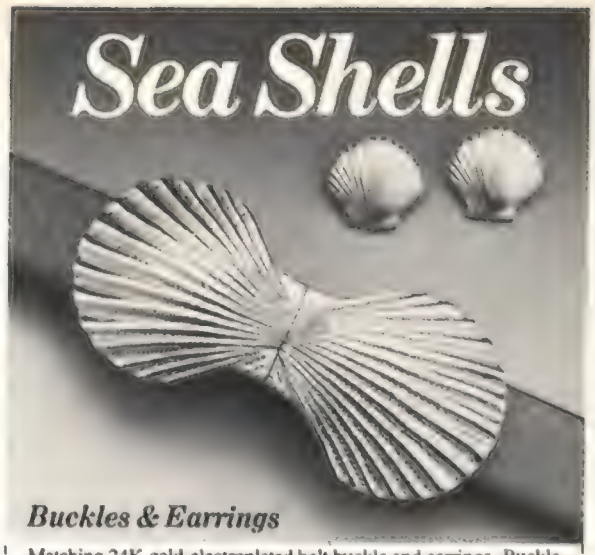

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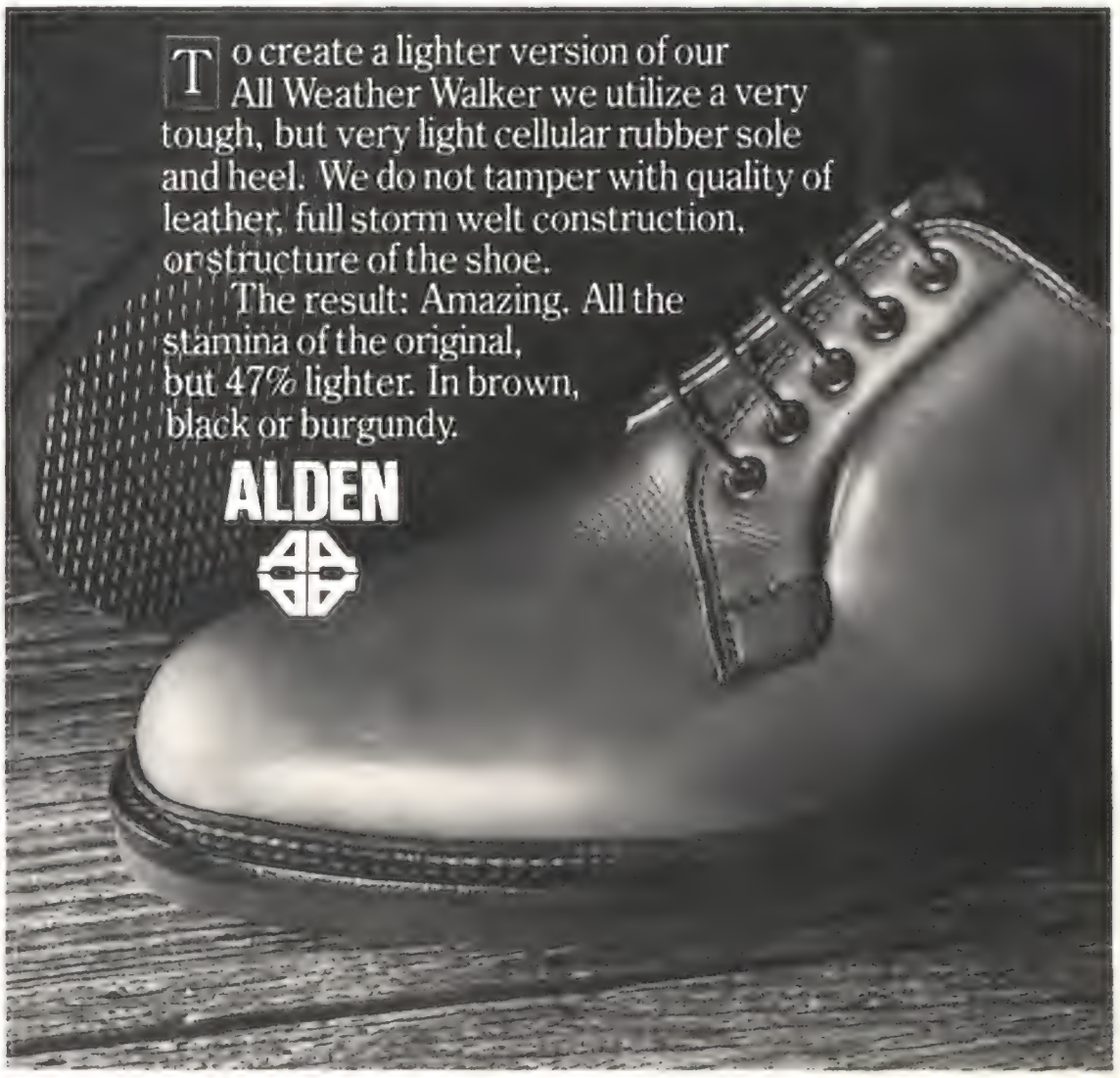
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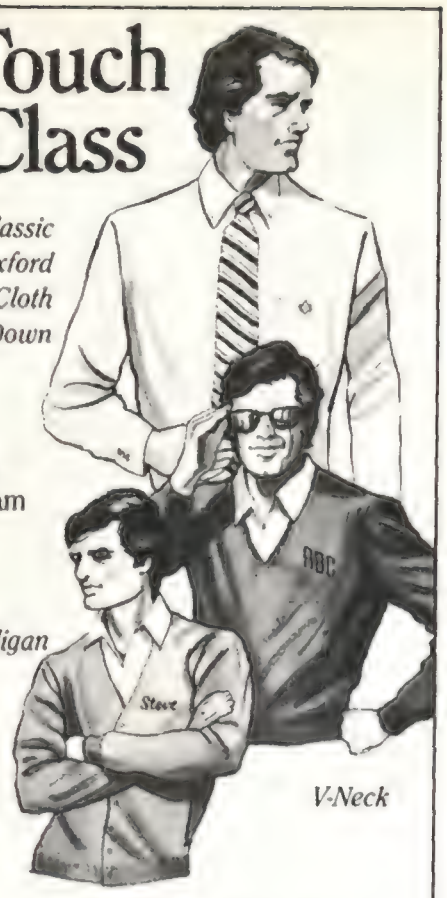

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tographer in reserving the national parks for public use, a right "inalienable for all time."

It is a rare collaboration on text and photographs that ably reflects the struggle to gain acceptance for the national park idea—a struggle that was uphill all the way. It flew in the face of the Colonial ethic, which held stewardship of land to be akin to stewardship of capital. The measure of its success is the more than 330 units in the national park system, including 48 parks, 78 monuments, 12 preserves, plus seashores and lakeshores, historic sites, recreation areas, scenic parkways, wild and scenic rivers and trails. Without the intrepid photographers, this book makes clear, it is unlikely that the frontier would have yielded a park system "unimpaired for the enjoyment of future generations."

The book has a dual life. It is also the basis for a traveling photographic exhibit organized by the National Park Foundation and made possible by a grant from Transamerica Corporation. The exhibit opened last May at the Oakland Museum and may be seen at the Corcoran Gallery of Art, Washington, D.C., September 19 through November 15, and subsequently at the New York Public Library, December 7 through February 3, 1982. Later bookings include Chicago, Fort Worth, Pittsburgh, Minneapolis, Denver and Los Angeles.

The photographs—102 of them—are beautifully printed on 11-by-12½-inch lustrous pages. They bear eloquent testimony to the grandeur of the parks. Robert Cahn's text deals with the symbiotic evolution of photography and the national park idea; Robert Glenn Ketchum explains the curatorial philosophy behind the selection of photographs—both for book and exhibit.

One of the first voices raised in the cause of preserving the land was George Catlin's. This artist-explorer, in his 1832 journal, observed: "Many are the rudenesses and wilds in nature's works which are destined to fall before the deadly axe and desolating hand of cultivating man." He sounded an early call for a national park "containing man and beast, in all the wild freshness of their nature's beauty."

In the 1850s, advances in photographic technology and a wider distribution of photographs contributed to the young nation's growing awareness of nature's

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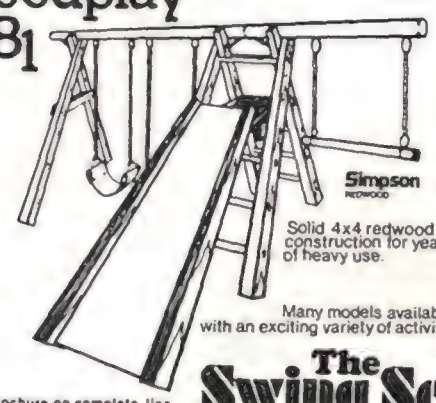

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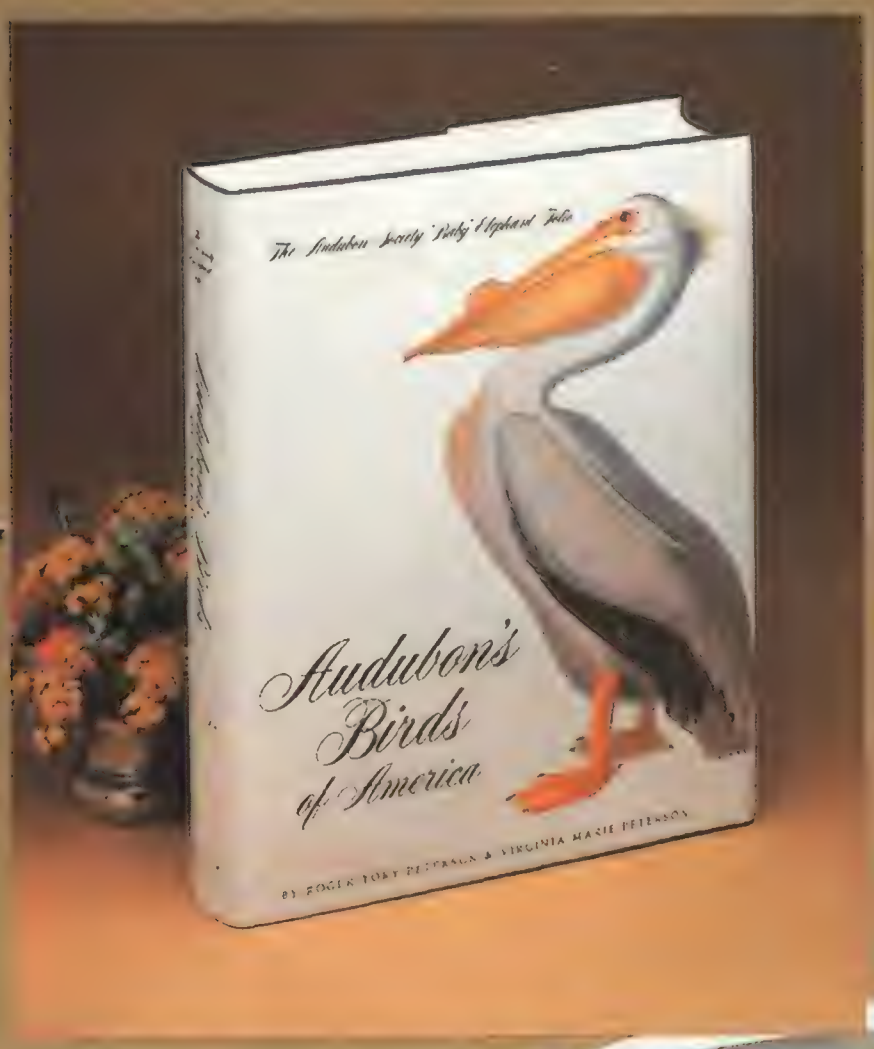

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esthetic values. California's Yosemite Valley was a favorite subject for pioneer photographers, and the works of Carleton E. Watkins, Eadweard Muybridge and Charles Leander Weed were among those that captured the magnificence of the landscapes there.

At the height of the Civil War, legislation was introduced into Congress by Senator John Conness of California to preserve Yosemite for "public use, resort and recreation."

It is likely that Conness used Watkins' photographs of Yosemite to rally support from his Senate colleagues. In any case, Congress passed the bill, which at the time designated the area as a state park, and President Abraham Lincoln signed it into law on June 29, 1864.

That law established a revolutionary principle: "For the first time, a large tract of land had been protected from settlement, and declared to be for the use of all the people permanently and inalienably." The state of California made it a penal offense to commit depredations on the land, and it appointed a guardian and appropriated $2,000 as the first operating fund for the park.

One of the most significant contributions to America's awareness of its unique landscapes and scenic magnificence was

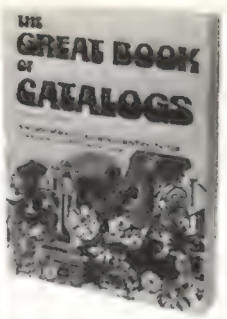
Death Valley dune, by William Garnett

the photography of William Henry Jackson. His association with Yellowstone and with other areas destined for the national park system began in the early 1870s. With a large, cumbersome camera and a "dark tent" (instead of a simpler portable dark box) he struggled over hazardous terrain southwest of Yellowstone to an altitude of 11,000 feet to shoot the first photographs of the Teton Range. The five photographs by Jackson which lead off this book's collection range in time from 1872 to 1900.

This reviewer succumbed to the temptation to select a favorite photograph from the book: Harry Callahan's *Cape Cod*, a 1972 gelatin silver print with a tiny human figure, all but lost in a vast background of ocean and seashore. By identifying with the runner, I gained an understanding of what this book is about, an understanding which photographer Dave Bohn, quoted in Cahn's text, put into words: "If you enter a national park area and know it is owned by everyone, therefore by no one, the result can be a feeling of participation."

A close examination of this book induces such a feeling.

Lucien Agniel
English Department
Davis & Elkins College



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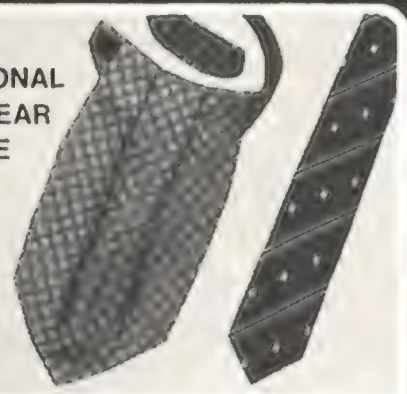

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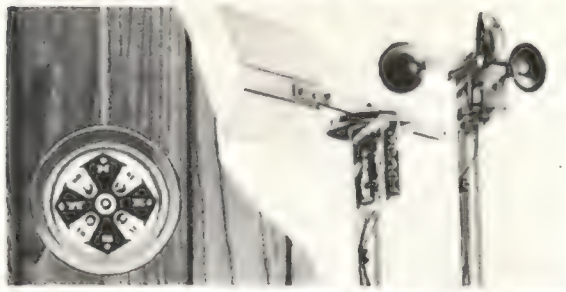

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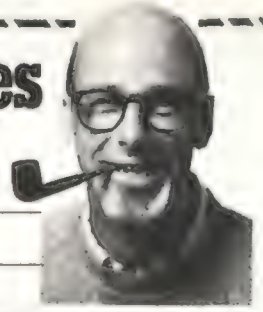

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Smithsonian highlights

Several years ago Joshua Taylor, the late director of the National Museum of American Art, received some watercolors from Mississippi wrapped in an old oatmeal carton. Late this month, through New Year's, several of that unknown artist's works—along with some 100 paintings, drawings, prints and sculptures from 68 other Appalachian-area artists—will be included in a major exhibition, "More Than Land or Sky." The show is scheduled for a two-and-a-half-year tour throughout the 13-state region.

While Appalachia has long been a fountainhead for American crafts, this may well be the first major exhibit to focus on the contemporary fine arts in the region. The artists, including two from a West Virginia coal miners group, were asked to make personal statements about the influences of the area on their art. The answers, both verbally and visually, are always eloquent, sometimes idiosyncratic, and in some cases marked by strong social protest.

Special October events

National Museum of American Art
More Than Land or Sky: Art From Appalachia (October 30-January 3) Works by 69 artists from 13 states.
The Print in the United States from the 18th Century to the Present (October 2-January 17) Ninety prints trace development of American printmaking.
Perkins Harnly: From the Index of American Design (October 30-January 3) Watercolors of Victorian interiors executed in the 1930s.
Cast and Recast: The Sculpture of Frederic Remington (through January 3).

Renwick Gallery
Venini Glass (through March 21) Retrospective exhibition of about 150 vessels from Venetian firm.

National Museum of Natural History
China's Inner Frontier (October 10-December 6) Photographs of Inner Mongolia from 1923 expedition of F. R. Wulsin.
Revelations of Nature (October 10-December 6) Sixty closeups by Smithsonian photographer Frank Greenwell.
Film Series (October 2, 9, 23, 30; noon) Insects, wetlands, techtonics and Madagascar; call 357-2700 for information.
Forensic Anthropology (October 16, noon) Illustrated lecture by curator J. Lawrence Angel on identification from the skeleton.

Hirshhorn Museum & Sculpture Garden
R. B. Kitaj (through November 15) Retrospective of artist's work (below).
Lee Friedlander: Photographs of the HM&SG (through November 8) Black-and-white works.

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HM&SG retrospective includes R.B. Kitaj's *The Sailor (David Ward).*

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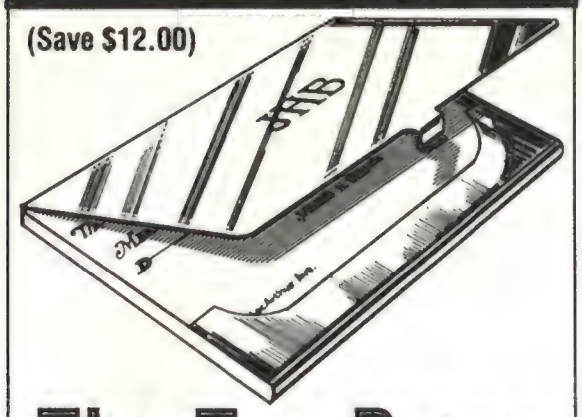

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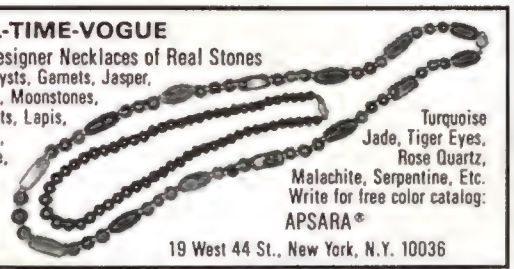

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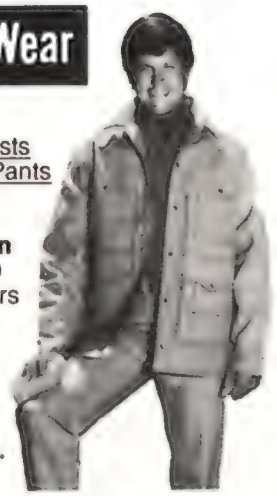

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Freer Gallery of Art
The Imperial Image—Painting for the Mughal Court (through January 28) Survey of richly painted manuscripts.
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National Museum of American History
Boehm Birds (through October 23) Some 60 porcelain birds made in the 1950s and 1960s.
Free Film Theater (Wednesdays, Thursdays, 12:30 P.M., Carmichael Auditorium) Films on the American Revolution.
Perfect in Her Place (through January 24) Women at work in the 19th century.

National Air and Space Museum
Breaking the Sound Barrier (October 7, 7:30 P.M.) Lecture by Brigadier General Charles ("Chuck") Yeager.
First Steps Into Space (October 5, 6; 7:30 P.M.) Documentary film series.
Aviation Films (October 1, 15, 22, 29; 7:30 P.M.) Feature films.
Venus: The Pioneer Perspective (October 5; 9 A.M.) Monthly sky lecture.

National Portrait Gallery
We Never Sleep: 50 Years of Pinkerton Men (through January 3) Saga of this detective agency and its personalities (SMITHSONIAN, August 1981).
Charles Willson Peale as Printmaker (through January 3) Portrait prints.

Regional Events

The Regional Events Program goes on the road October 26-November 1 to Oshkosh, Wisconsin, with presentations on conservation, miniature houses and furnishings, 19th-century Indian delegations to Washington and America's most prominent art collectors. Associates in the Oshkosh area should have received invitations by this time. For further information write Regional Events, 1208 A&I Building, Smithsonian Institution, Washington, D.C. 20560.

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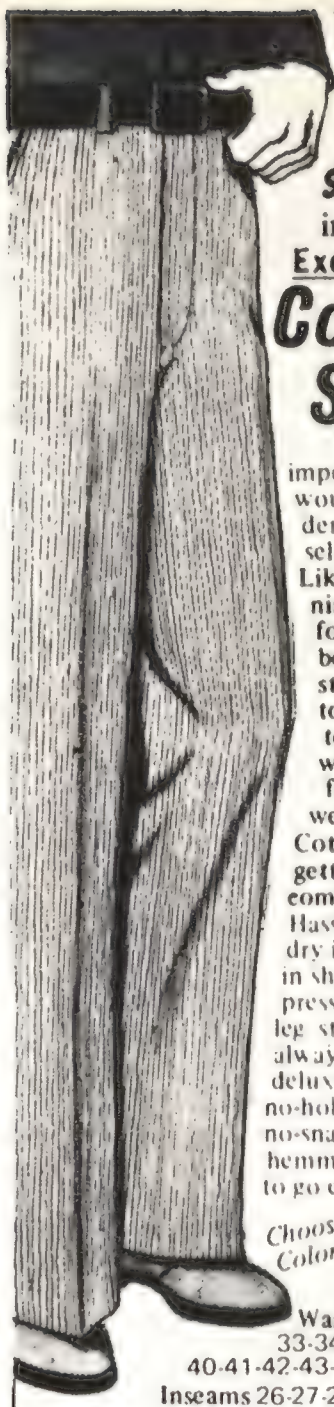

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Smithsonian events

For tickets and price information on Resident Associate events, call 357-3030:

Homage to Breuer (October 14, 6 P.M.) Slide lecture by architect and former Breuer colleague Stanley Abercrombie.

Extinction (October 19, 6 and 8:30 P.M.) Paul Ehrlich discusses his latest book in Audubon Lecture Series.

Perry Miller Adato: Visions of Picasso and Sandburg (October 6, 8 P.M.) Excerpts from two recent films.

The English Country House (October 3-4) Intensive two-day seminar with English historian William R. Dalzell.

Collecting Art (October 7, 14, 21, 28) Luncheon and evening talks by experts in their own fields.

Larger Than Life (October 4, 18, 25, November 1, 8; 7 P.M.) Films include *The Big Country, Little Women, Somebody Up There Likes Me, Grapes of Wrath, Roughly Speaking.*

Picasso, My Friend: A 100th Birthday Celebration (October 26, 8 P.M.) French photographer-film maker Lucien Clergue recalls a longtime friendship.

The Lost World of Tibet (October 24) An all-day seminar.

Paul Gauguin: The Richness of Tradition (October 7, 8 P.M.) Slide lecture by eminent art historian Theodore Reff.

Reflection of Venice in Dublin (October 27, 8 P.M.) Slide lecture by Irish scholar John Gilmartin.

The Fighting Man of the American Revolution: Celebrating Yorktown (October 6, 8 P.M.) Slide lecture by historian-collector George C. Neumann.

For tickets to Performing Arts events, call 357-1500:

Rose-Marie (May 16-18) Landmark musical reconstruction of Rudolf Friml's most popular operetta.

Governor Jimmie Davis/The Chuck Wagon Gang (October 25, 8 P.M.) Beloved author of *You Are My Sunshine*, historic vocalists blend gospel and country.

A London House Concert (October 26, 8 P.M.) Smithsonian Chamber Players recreate the music heard in London during Washington's time.

Radio Smithsonian

Trains, planes, the labor movement and cave paintings are among the October listings for Radio Smithsonian and Smithsonian Galaxy, broadcast nationwide. To find out which area stations carry either program, write Smithsonian Office of Communications, A&I 2472, Washington, D.C. 20560.

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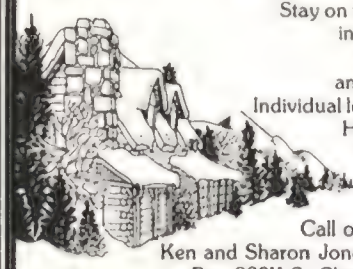

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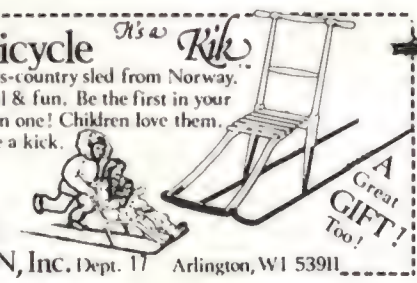

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Phoenix (October 10-November 8) *Mexico As Seen By Her Children,* Central Arizona Museum.

Jacksonville (October 3-November 1) *John Sloan In Santa Fe,* Cummer Gallery of Art.

Glencoe, Illinois (October 10-November 8) *Folk Arts and Crafts: The Deep South,* Chicago Botanical Gardens.

Baltimore (October 3-November 1) *Invisible Light,* Maryland Science Center.

Albion, Michigan (October 10-November 8) *Children's Art From the People's Republic of China,* Brueckner Museum.

Elmira, New York (October 3-November 1) *The Contemporary American Potter,* Arnot Art Museum.

New York (September 29-October 25) *Transformed Houses,* Parsons School of Design.

Altoona, Pennsylvania (October 3-November 1) *Portraits and Dreams: Photographs by Appalachian Children,* Southern Alleghenies Museum of Art.

Pittsburgh (October 1-December 31) *Ice Age Art,* Carnegie Museum of Natural History.

Chattanooga (October 17-November 15) *Photographs From the National Portrait Gallery,* Hunter Museum of Art.

Oak Ridge, Tennessee (October 17-November 15) *Impressions / Expressions: Black American Graphics,* Oak Ridge Community Arts Center.

Corpus Christi (October 24-January 10) *A Collector's Eye: The Olga Hirshhorn Collection,* Art Museum of South Texas.

Membership benefits

Most Smithsonian museums are open daily from 10 A.M. to 5:30 P.M. Begin your visit by stopping at the Associates Reception Desk in the castle. Here from 10 A.M. to 4 P.M. a warm welcome includes special membership materials and complete details about benefits: dining in The Court, discounts in museum shops and a slide/lecture orientation to the 13 museums. In the Associates Lounge, from October 10-November 30, see the special exhibit on the Battle of Yorktown (p. 92).

To receive a free previsit information packet, send postcard or phone Associates Reception Center, Smithsonian Institution, Washington, D.C. 20560 (202-357-2700 or, for hearing impaired, TDD 202-357-1729). Allow two weeks for receipt.

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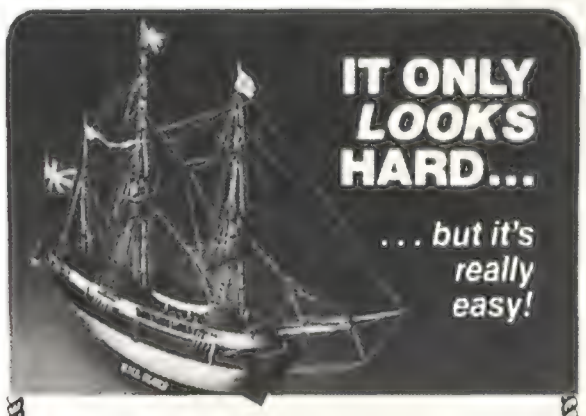

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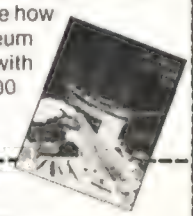

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Preservation in the garden

Hirshhorn Sculpture Garden was reopened recently after renovation. New additions: ramps for handicapped, brick and grass.

Once again small birds are roosting in the hollow head of Reuben Nakian's sculpture, *Goddess With the Golden Thighs,* and tourists are disregarding the signs and touching the toe of the *Man Pushing the Door* (right). Now that the two-acre, sunken garden of the Hirshhorn Museum and Sculpture Garden has reopened after an extensive renovation, these sculptures and some 75 others are back among the elements. Besides people and pigeons, there's weather, auto fumes and acid in the air, all quietly attacking the art.

In the face of such adversity, preservation of outdoor sculpture is a daily grind, almost literally, according to HM&SG conservator Lee Aks. He routinely scrubs, waxes, repairs metal mountings and checks for vandalism, pigeon droppings and greasy fingerprints. Fortunately, the Hirshhorn has a head start in the race against ravage. No heavily pitted, greenish specimens here. "Most of our pieces are recent and we received them in good condition," says Aks. "Our main job is to keep them that way."

Once a year the bronzes, which make up the bulk of the display, are cleaned with a mild detergent and a stronger solvent, then waxed. An intricate, multithousand-pound piece like Rodin's *Burghers of Calais* can take two weeks to treat. Painted sculptures get touch-ups: automotive paint is used on Calder's *Mobile-Stabile.* Pieces with moving parts require special lubricants, while steel sculptures get protective coats of oil; so far, stainless has been the most corrosion-resistant.

Does sculpture belong outdoors? "There's a tradition of sculpture being an ornament to architecture," says Aks, himself a sculptor, "and although it now has its own esthetic justification, it still suits the outside. Pieces of this scale need room to breathe." True, despite people, pigeons, pollution and other problems.

Carol Simons

Conservator Lee Aks waxes knee of Ipoustéguy's *Man Pushing the Door* . . .

and applies a strong-smelling solvent to clean Saul Baizerman's *The Miner* . . .

then gives detergent shampoo to Henry Moore's *Draped Reclining Figure* . . .

and administers protective pedicure to *Fallen Bird Man* by Elisabeth Frink.

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Desolation and Gray Canyons September 30-October 11 or October 12-23: Whitewater trip for the adventurous; explore the geology, wildlife and exciting Indian and outlaw history of Utah's Green River.

Great Smoky Mountains October 8-15: Camping, hiking and brilliant autumn colors enhance this spectacular natural history study adventure.

Florida Keys October 19-25: Observe spectacular coral reefs, canoe through mangrove islands and walk in a tropical hardwood forest to experience the variety of ecosystems in this unique archipelago.

Sapelo Island November 8-14: Camp on unblemished beaches while studying the marine ecology, Indian ruins and history of this Georgia barrier island.

Christmas at the Smithsonian December 4-6: Join curators and staff for behind-the-scenes tours of specially selected museums and tenth annual tree-trimming gala.

Baja Whale Watch February 12-20: Sportfishing boat serves as base for observing gray whales; hikes and lectures focus on the natural history of the Baja islands.

South Texas Wildlife February 18-25: Follow the winter bird migration to the Gulf of Mexico and Rio Grande Valley while visiting the wildlife refuges of Aransas, Padre Island, Laguna Atascosa and Santa Ana.

Yellowstone in Snow February 19-28: Cross-country skiing in Jackson, Wyoming, and Yellowstone National Park to discover the splendors of nature.

Everglades March 6-13: Explore a subtropical wilderness best known for its abundance and variety of birdlife and home to deer, otter and alligator. Activities include canoe trips and visit to Corkscrew Swamp Sanctuary.

Washington "Anytime" Weekend Choose any weekend to visit your choice of Smithsonian museums, spend two nights at Loew's L'Enfant Plaza Hotel or Hyatt Regency Washington, each close to the Mall, and see other sights in the city by Tourmobile. Reservations and payments at least ten days prior to arrival.

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India Wildlife Safari November 16-December 11: Visit major wildlife sanctuaries to observe the magnificent animal life of the subcontinent. Travel to parks in Northern and Central India and Nepal's famous Tiger Tops. Includes Bombay, Delhi, Jaipur and Agra, site of the Taj Mahal.

Baroque Winter: Vienna, Salzburg, Munich January 3-17: The splendors of Central Europe in the new year with walking tours, museum lectures, opera and concerts in Vienna, Mozart's Salzburg, and the Bavarian capital. A special Smithsonian Viennese Ball is included.

Panama and the Spanish Main January 9-16: Experience the thrill of traveling from the Pacific to the Atlantic through the Panama Canal. Continue to the fascinating San Blas islands, then the Spanish Main bastion of Cartagena. Our chartered ship *Jason* also calls at Bonaire in the Dutch Antilles, Barbados and Margarita—the pearl island.

Mayan Mexico: The Yucatán Peninsula January 21-February 2 or February 10-22: The extraordinary ruins of the Yucatán in the company of an archaeologist—Uxmal, Palenque, Labná, Sayil, Kohunlich, Cobá, Tulum and Chichén Itzá.

Kenya January 28-February 14: Incomparable wildlife is observed in old safari tradition. Seminars in Nairobi, and in the field at Masai Mara, Samburu, Kilaguni. Meet local citizens and visit a school and handicraft center.

Tall Ship Adventure February 12-21: Set sail on the luxurious 317-foot, four-masted sailing yacht *Sea Cloud* from Antigua to the Grenadines. Lectures and excursions enhance this fabulous sailing experience in the Caribbean.

Zapotec and Mayan Mexico February 24-March 8 or March 17-29: Oaxaca and Zapotec sites of Monte Albán and Mitla; San Cristóbal de las Casas; Palenque, Uxmal and other Mayan ruins in the Yucatán.

Red Sea Passage February 25-March 7: Sail from Suez on the *Argonaut*, visit Karnak, Luxor, Valley of the Kings, Abu Simbel in Egypt and Petra in Jordan. Tour the mosques and bazaars of Cairo, the Sphinx and pyramids at Giza. Optional Jerusalem prelude—February 18-26.

Morocco March 5-20: Exotic Fez, Marrakesh and Rabat, colorful and tempting markets in ancient medinas, the powerful and lonely beauty of desert and mountain provide an exciting learning experience.

Australia March 19-April 6: Discover the diversity of "Down Under." Visit Sydney, Melbourne, the Barrier Reef, Alice Springs and Ayres Rock.

Ecuador and the Galápagos Islands April 4-15: Visit Quito, then travel by train to Guayaquil to board the *Buccaneer* for a seven-day voyage through the Galápagos Islands. Participate in seminars and meet with scientists at the Charles Darwin Research Station; observe the rich plant, bird and animal life.

Flemish Renaissance April 16-28: Art museums, historic sites, and spring flowers highlight visits to Brussels, Antwerp, and Ghent. From Bruges, sail on rivers of Belgium and Holland, ending with four colorful days in Amsterdam.

Write National Associates, A&I 1278 Smithsonian Institution, Washington, D.C. 20560 or call (202) 357-2477 for specific tour brochure

in Washington

Selected Studies Seminars

Enjoy the treasures of the Smithsonian in popular programs which combine excellent speakers and special behind-the-scenes tours. Choose from:

Tibet: Lost Horizons October 18-23: The culture, history and art of this rich civilization along with behind-the-scenes tours of the Freer Gallery and the best private Tibetan art collection in the United States.

Historic House Preservation November 1-6: Nationally known experts advise on all aspects of restoration and tour successful projects from lovely town houses to country estates. (Repeat due to popular demand.)

World War II Aviation November 15-20: The outstanding staff of the National Air and Space Museum offers new insights into how the major air forces developed and how quantum jumps in performance were achieved. Includes tours of many of the only surviving planes in the world.

Post-Impressionist Masters March 7-12: Bill Kloss explores the outstanding paintings of artists such as Gauguin, van Gogh and Cézanne in lavishly illustrated lectures and tours of great museums.

Genealogical Research March 14-19 or March 21-26: Taught by Milton Rubincam, Marilyn Duncan and other leading authorities, participants learn how to conduct research in major genealogical repositories such as the National Archives, Library of Congress and DAR Library.

Religions of the Far East March 28-April 2: The great traditions and practices of Buddhism, Confucianism, Taoism, Shinto and Zen which have inspired and motivated the greatest minds of Asia for over 2,000 years. Includes tours at the Freer.

American Painting in the 19th Century March 28-April 2: Exploration of the achievements of acknowledged masters such as Copley, Cole, Church, Homer, Ryder and Eakins. Includes tours of the Capitol, National Gallery of Art and National Museum of American Art.

Coming:
Chinese Ceramics April 18-23;
Quilting: Traditional to Modern April 25-30;
The New Astronomies May 9-14: Lecture/tour week in Tucson.

or (202) 357-2475 for seminar brochures.

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By Charles R. Larson

Packagers must have it in for me

The incorporated township where I reside recently sent out a mailer asking all us residents to separate newspapers from the rest of our trash. The disposal bills for the township have gone sky-high. The dump now charges by weight instead of by bulk, and newspapers—the announcement said—account for a major portion of the trash. If the newspapers are bundled and tied, they can be sent to a separate recycling center and sold for profit instead of inflating the community disposal bill. It sounded like a good plan to me.

I started thinking about all the unrequested "trash" that enters my house each week, overflowing the wastebaskets in each room. Not just the junk mail and the unsolicited catalogs that come in by the hundredweight. I've come to accept them as a condition of modern living. After all, once in a while, a first-class letter trickles through. Rather, I'm referring to all the unnecessary or duplicate packaging that becomes an inconvenience to the purchaser as soon as he takes it home. I'd call it nuisance packaging, though much of it has been designed to make products difficult to pilfer.

Think about the form-fitting plastic shields over small objects (such as ballpoint pens or razor blades or women's cosmetics) mounted on a piece of cardboard. Books and other small objects shipped through the mails these days usually arrive in Jiffy bags which rarely can be opened without the pulp spilling all over the living room.

My adrenalin also starts flowing whenever I open some giant cartons only to encounter a tiny object that could be packed in a much smaller box, swimming in thousands of small Styrofoam pellets—almost impossible to clean up because they are drawn to static electricity. Once, in fact, when I was emptying a carton of them into the trash can outside, a gust of wind sent hundreds of these damnable little peanut-shaped critters flying all over my side yard.

The queen bee of all these packaging annoyances, however, is that indestructible T-shaped piece of plastic that comes attached to almost every object of wearing apparel one buys in department stores, connecting the price tag to the object. Since I do not know what this irritating little doohickey is called—much less the culprit who invented it—I have named it the Universal Annoyance.

I have encountered parts of them entangled in the carpeting. Half of one was embedded in my two-year-old daughter's sweater, discovered only after she cried out that something was sticking her. Sometimes, after I've run a load of laundry, they are caught in my socks and my underwear. And, of course, I discover bits and pieces of them all over the house: under dressers and other furniture and, above all, in the drawers of my desk.

As everyone knows, the Universal Annoyance was invented for the sole purpose of harassment. It cannot be torn apart by the strongest hands; the object attached to it will be damaged if one attempts to remove it by sheer force. You wouldn't think something that small could be so indomitable. Cutting it with scissors or a knife only results in further frustration, since each Universal Annoyance has an uncanny ability to duplicate itself. Half of it always gets lost or permanently locked into the object to which it was attached. Its clones appear with dogged persistence all over one's house.

Not so many years ago, men's shirts came smothered in pins—hidden in devious places in the wrapping to prick the fingers of the unsuspecting purchaser. I remember my similar frustrations with those objects of torture, but at least they served some constructive function. By contrast, the Universal Annoyance must have been designed to raise one's blood pressure. I never can find a pair of scissors when I want to cut the thing in two. Like Muzak, and vegetables prewrapped in Saran, it has become a part of our lives.

To my horror, the other day I discovered a Universal Annoyance stuck to a pineapple I had bought at the grocery, attached to a little card that informed me how to prepare the fruit. I regard this as an especially bad omen for the kitchen. Soon, I'll probably discover that Universal Annoyances have fallen into my spaghetti or macaroni casseroles, which also means that it is only a matter of time before they show up in the meals we eat in fancy restaurants.

"Waiter, there's a Universal Annoyance in my soup!"

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